

Unit One

From the school book

Exercise

1

The set of natural numbers

1 Underline the natural numbers from the following numbers :

15 , 6.2 , 0 , 417 , $\frac{4}{5}$, 0.7 and 91328

2 Complete by using the suitable symbol from \in , \notin , \subset or $\not\subset$:

(a) $\mathbb{N} \subset 2 \dots\dots\dots \mathbb{N}$

(b) $\mathbb{N} \subset \{2\} \dots\dots\dots \mathbb{N}$

(c) $\{0\} \dots\dots\dots \mathbb{N}$

(d) $\mathbb{N} \subset 0 \dots\dots\dots \mathbb{N}$

(e) $\mathbb{N} \subset 22.22 \dots\dots\dots \mathbb{N}$

(f) $\mathbb{N} \subset \{55\} \dots\dots\dots \mathbb{N}$

(g) $\mathbb{N} \subset \{2, 4, 6\} \dots\dots\dots \mathbb{N}$

(h) $\mathbb{N} \subset \{2, 0.2\} \dots\dots\dots \mathbb{N}$

(i) $\emptyset \dots\dots\dots \mathbb{N}$

(j) $\frac{15}{3} \dots\dots\dots \mathbb{N}$

(k) $\mathbb{N} \subset \frac{3}{4} \dots\dots\dots \mathbb{N}$

(l) $\{3, 4, 5, \dots, 30\} \dots\dots\dots \mathbb{N}$

(m) $\{3, 7\} \cap \{3, 5\} \dots\dots\dots \mathbb{N}$

(n) $\mathbb{N} \subset \{1, 3\} \cap \{2, 4\} \dots\dots\dots \mathbb{N}$

(o) $\{0\} \cup \{1, 2, 3, \dots\} \dots\dots\dots \mathbb{N}$

(p) $\{0\} \dots\dots\dots$ the set of counting numbers.

(q) $\{1, 2, 3\} \cup \{2, 5, 7\} \dots\dots\dots$ the set of counting numbers.

(r) The number of people in the world $\dots\dots\dots \mathbb{N}$

3 Mark (\checkmark) for the true statements and (\times) for the false ones :

(a) $\mathbb{N} \subset 7.2 \in \mathbb{N}$

()

(b) $\frac{2}{3} \in \mathbb{N}$

()

(c) $\mathbb{N} \subset \{0\} \subset \mathbb{N}$

()

(d) $\{19\} \subset \mathbb{N}$

()

(e) $\emptyset \not\subset \mathbb{N}$

()

(f) $475\,621 \in \mathbb{N}$

()

(g) $\{1, 4, 5\} \subset \mathbb{N}$

()

(h) $\{0, 1, 2, 3, \dots, 100\} \subset \mathbb{N}$

()

(i) $\{0\}$ is a subset of the counting numbers.

()

(j) $\mathbb{N} \subset \{0\} \cup \{1, 2, 3\} = \mathbb{N}$

()



Lesson One

- (k) $\{5, 8\} \cap \{4, 9\} \subset \mathbb{N}$ ()
- (l) $\{0, 1, 2\} \cup \{3, 4, 5, \dots\} = \mathbb{N}$ ()
- (m) Weight of any thing in kgs. $\in \mathbb{N}$ ()
- (n) Number of pages of a book $\in \mathbb{N}$ ()
- (o) The set of natural numbers is infinite. ()

4 Complete each of the following to get a true sentence :

- | | |
|---|--|
| (a) $E \cup O = \dots\dots\dots$ | (b) $E \cap O = \dots\dots\dots$ |
| (c) $E - O = \dots\dots\dots$ | (d) $O - E = \dots\dots\dots$ |
| (e) $\mathbb{N} \cap O = \dots\dots\dots$ | (f) $\mathbb{N} \cap E = \dots\dots\dots$ |
| (g) $\mathbb{N} \cap P = \dots\dots\dots$ | (h) $E \cap P = \dots\dots\dots$ |
| (i) $\mathbb{N} \cup E = \dots\dots\dots$ | (j) $\mathbb{N} \cup O = \dots\dots\dots$ |
| (k) $P \cup \mathbb{N} = \dots\dots\dots$ | (l) $E - \mathbb{N} = \dots\dots\dots$ |
| (m) $\mathbb{N} - O = \dots\dots\dots$ | (n) $P - O = \dots\dots\dots$ |
| (o) $\mathbb{N} \cap C = \dots\dots\dots$ | (p) $C \cup \mathbb{N} = \dots\dots\dots$ |
| (q) $\{15, 6, 0, 4\} \cap \mathbb{N} = \dots\dots\dots$ | (r) $O \cap \{0, 1, 2\} = \dots\dots\dots$ |
| (s) $E \cap \{0, 1, 2\} = \dots\dots\dots$ | |



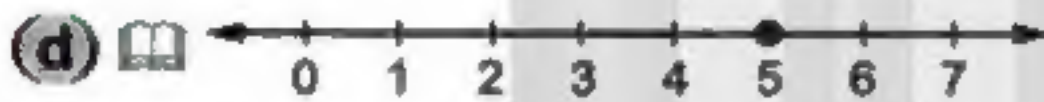
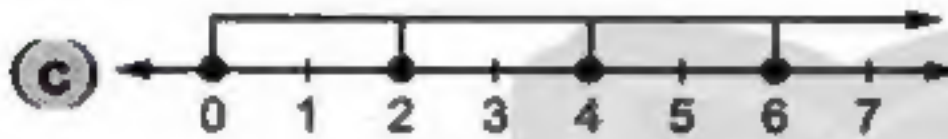
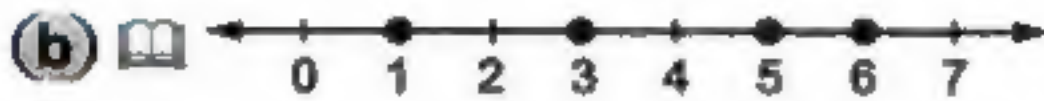
Challenge

5 Complete using $[\in \text{ or } \notin]$:

- | | |
|--|--|
| (a) $(15.7 + 9.3) \dots\dots\dots \mathbb{N}$ | (b) $(2.4 + \frac{3}{5}) \dots\dots\dots \mathbb{N}$ |
| (c) $(15.2 \times 8.5) \dots\dots\dots \mathbb{N}$ | (d) $(214.25 - 15 \frac{1}{4}) \dots\dots\dots \mathbb{N}$ |
| (e) $(21 + \frac{7}{11}) \dots\dots\dots \mathbb{N}$ | (f) $(12 \times 4.1) \dots\dots\dots \mathbb{N}$ |

Unit One

From the school book

Exercise 2 Ordering and comparing natural numbers**1** Write down the represented set on the following number lines :**2** Represent each of the following sets on the number line :

(a) $\{1, 4\}$

(b) $\{0, 2, 3\}$

(c) $\{4\}$

(d) $\{1, 2, 3, 5\}$

(e) $\{3, 4, 5, \dots\}$

(f) $\{1, 3, 5, 7, \dots\}$

(g) $\{7, 9\} \cup \{8\}$

(h) $\{2, 4, 7, 19\} \cap \{2, 4, 5, 9\}$

(i) $\{4, 8, 9, 10\} - \{8, 10\}$

3 Represent on the number line $X \cup Y$, where :

$X = \{1, 2, 3, 5\}$, $Y = \{5, 6, 7\}$, then find $X \cap Y$

4 Write, using the listing method, each of the following sets of numbers and represent each of them on the number line :

(a) The set of counting numbers less than 4

(b) The set of natural numbers less than 7

(c) The set of natural numbers greater than 3

(d) The set of natural numbers between 1 and 4

(e) The set of natural numbers greater than 3 and less than 7



Lesson two

- (f) The set of natural numbers less than or equal to 5
- (g) The set of natural numbers greater than or equal to 4
- (h) The set of odd numbers.
- (i) The set of even numbers.
- (j) The set of even numbers between 2 and 6
- (k) The set of odd numbers less than 9
- (l) The set of prime numbers less than 10
- (m) The set of natural numbers between 3.45 and 7.9
- (n) The set of natural numbers greater than $4\frac{1}{3}$ but less than 6.9
- (o) The set of natural numbers which are not less than 2 and not greater than 7
- (p) The set of prime factors of 30
- (q) The set of natural numbers divisible by 1

5 If x is an even number included between 2 and 10 , write down the values of x , then represent the values of $\frac{x}{2}$ on the number line.

6 If x is a prime number included between 1 and 5 , write down the values of x , then represent the values of $\frac{12}{x}$ on the number line.

7 Put (✓) or (x) :

- (a) The natural number between 37 and 39 is 38 ()
- (b) There is only one natural number between 99 and 101 ()
- (c) There is no natural numbers between 499 and 501 ()
- (d) There are exactly two natural numbers between 3 and 5 ()
- (e) The least natural number that is greater than 7 but less than 24 is 23 ()
- (f) There is no natural numbers between 3.4 and 4.4 ()
- (g) There is one natural number between 2.8 and 3 ()
- (h) The greatest natural number is milliard. ()

Unit One

8 Complete :

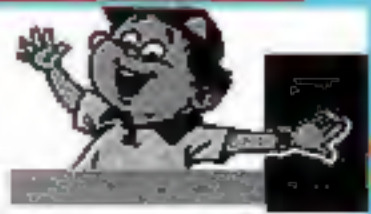
- (a) The smallest natural number is
- (b) The smallest counting number is
- (c) The least even number is
- (d) The least odd number is
- (e) The least prime number is
- (f) The least natural number between 4 and 9 is
- (g) The greatest natural number between 0 and 10 is
- (h) The natural number between 7 and 9 is
- (i) The natural number greater than 8 but less than 10 is
- (j) The natural number between $\frac{9}{3}$ and $\frac{15}{3}$ is
- (k) The greatest 2-digit natural number is
- (l) The natural numbers between $5\frac{1}{3}$ and $9\frac{2}{7}$ are
- (m) Between 10 and 103 there are natural numbers.

9 Rewrite the following statements using [$>$, \geq , $<$ or \leq]:

- | | |
|-------------------------------------|----------------------------------|
| (a) X is less than 8 | (b) X is greater than 8 |
| (c) 8 is less than X | (d) 8 is greater than X |
| (e) Z is greater than or equal to L | (f) 9 is less than or equal to L |
| (g) 9 is greater than or equal to L | (h) Z is between 9 and 17 |

10 Write the following sets using the listing method and represent them on the number line :

- | | |
|---|--|
| (a) $X = \{a : a \in \mathbb{N}, \text{ where } a \text{ is between } 0, 4\}$ | (d) $Y = \{a : a \in \mathbb{N}, a \leq 5\}$ |
| (b) $X = \{a : a \in \mathbb{N}, \text{ where } a \text{ is less than } 3\}$ | (f) $Z = \{a : a \in \mathbb{N}, a > 4\}$ |
| (c) $Z = \{a : a \in \mathbb{N}, a < 6\}$ | (h) $L = \{a : a \in \mathbb{N}, 3 < a \leq 6\}$ |
| (e) $Y = \{a : a \in \mathbb{N}, a \geq 3\}$ | (j) $D = \{d : d \in \mathbb{O}, 3 \leq d < 9\}$ |
| (g) $M = \{a : a \in \mathbb{N}, 2 \leq a \leq 5\}$ | |
| (i) $B = \{b : b \in \mathbb{N}, 7 > b > 4\}$ | |



Lesson two

11 If $U = \{x : x \in \mathbb{N}, 1 \leq x \leq 8\}$, $X = \{2, 3, 4, 5\}$, Y is the set of factors of 6, then find each of the following and represent it on the number line :

(a) $X \cap Y$

(b) $X \cup Y$

(c) $X - Y$

(d) Y

(e) $(Y - X) \cap \bar{X}$

12 Find the ascending order of : 5, 0, 2, 4, 1 and represent then on a number line.

13 Write the descending order of : 456, 546, 465, 654, 564, 645

14 Write [$<$, $>$ or $=$]:

(a) 908 9008

(b) 5075 5057

(c) 2239 2229

(d) $x + 18$ $x + 17$, where $x \in \mathbb{N}$

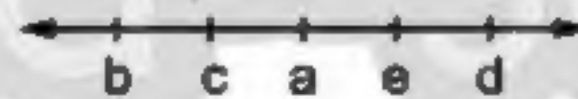
(e) $x - 18$ $x - 17$, where x is a natural number greater than 20.

(f) x 75, where $x \in \{30, 21, 32, 33\}$

(g) y 18, where $y \in \{20, 21, 22, 23, 24\}$

(h) z 35, where $z \in \{35\}$

15 If the following natural numbers a , b , c , d and e are represented on a number line as shown on the figure below :



First : Complete using [$<$ or $>$] and justify your answer :

(a) a b because a is placed to the right of b

(b) b c because b is placed to the left of c

(c) c e because

(d) e b because

(e) a d because

(f) c d because

Second : The ascending order is :,,,,

Unit One

- 16 The following number line graph shows 4 numbers a , b , c and d :



Complete with [< or >] :

- (a) $a \dots b$ (b) $c \dots d$ (c) $d \dots a$
 (d) $a \dots c$ (e) $c \dots b$ (f) $d \dots b$

- 17 The greatest number of four consecutive natural numbers is $x + 7$. Find the other three numbers.

- 18 The greatest number of five consecutive natural odd numbers is $y + 15$. Find the other four numbers.

- 19 The middle number of three successive natural odd is y . Find the other two numbers. What is the least value of the number y ?



Challenge

- 20 a , b , c and d are four natural numbers where , $d > a$, $b < c$, $c < d$, $b < d$, and $b > a$. Represent these numbers on a number line.

Unit Three

From the school book

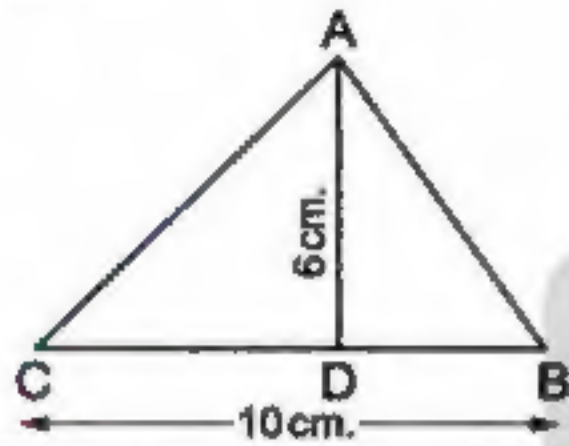
Exercise

1

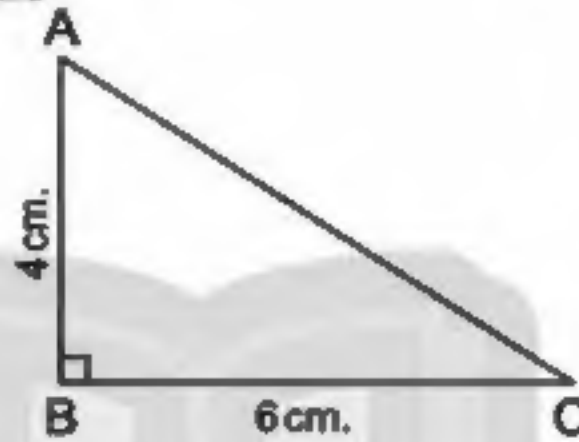
Area and its units - Areas of triangles

1 Find the area of $\triangle ABC$ in each the following triangles:

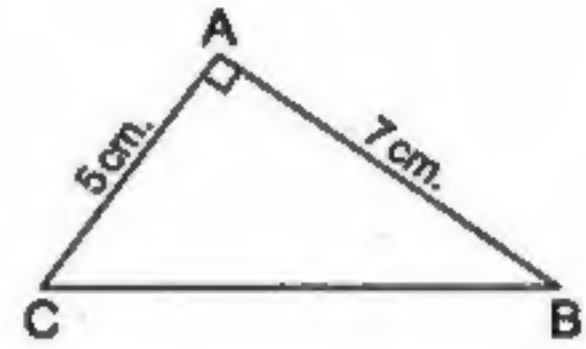
(a)



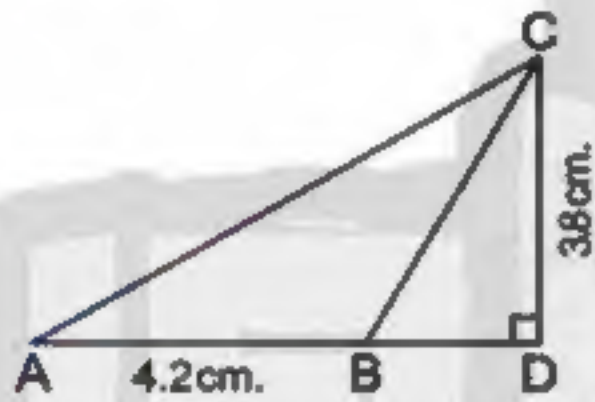
(b)



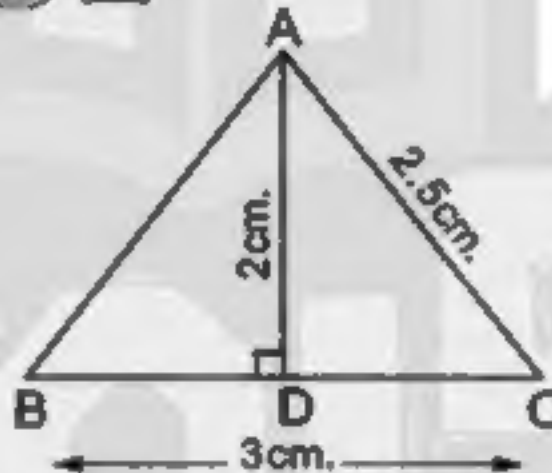
(c)



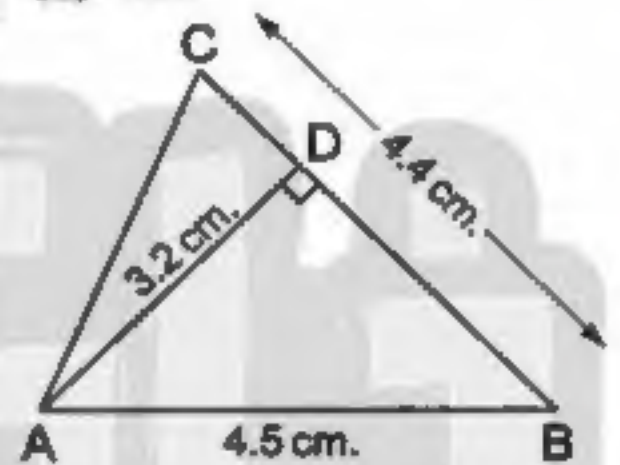
(d)



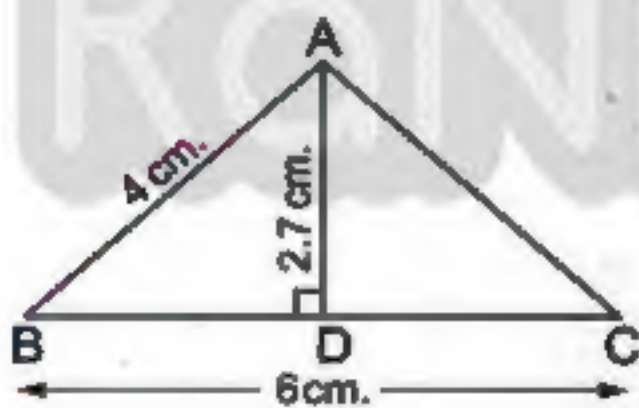
(e)



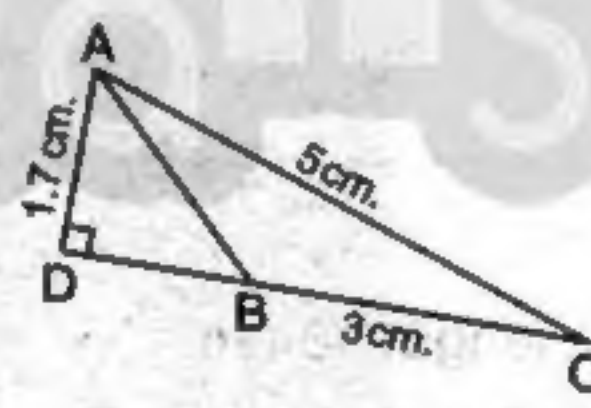
(f)



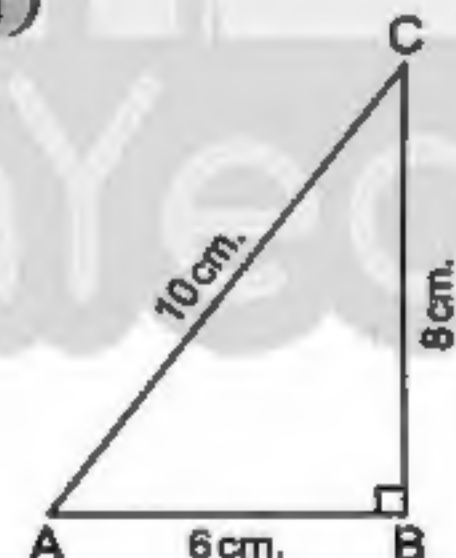
(g)



(h)



(i)



2 Find the area of a triangle whose base length = 4.2 m. and its corresponding height = 5.5 m.

3 If the area of a triangle is 60 cm^2 and the base length is 7.5 cm. , calculate its corresponding height.4 The area of a triangle is 180 cm^2 , and the height is 45 cm. Find its corresponding base length.



Lesson One

5 Complete the table :

Base length of Δ in (cm.)	Height of Δ in (cm.)	Area of Δ in (cm. ²)
12	9	.....
10	.....	25
.....	8.2	24.6

6 Complete :

- (a) The area of a triangle = $\frac{1}{2} \times \dots \times \dots$
- (b) If the length of the base = 6 cm. and the corresponding height = 4 cm., then the area of this triangle = cm.²
- (c) If the area of a triangle is 30 cm.² and its base length is 6 cm., then its corresponding height = cm.
- (d) If the area of a triangle is 120 cm.² and its height = 1.2 dm., then its corresponding base length = cm.
- (e) If ABC is a right-angled triangle at B, and BC = 10 cm., AB = 8 cm., then its area = cm.²
- (f) If the perimeter of an equilateral triangle is 18 cm., and its area is 15 cm.², then its height is cm.
- (g) If the perimeter of an equilateral triangle is 27 cm. and its height is 7.8 cm., then its area is cm.²

7 A triangle is of base length 12 cm. and its corresponding height is 4 cm. less than its base length. Find the area of this triangle.

8 The base of a triangle is 14 cm. long and its corresponding height is $\frac{3}{7}$ of its base length. Find the area of the triangle.

9 If the area of a triangle is equal to the area of a square of side length 7 cm. Calculate the height of the triangle if its corresponding base length is 14 cm.

Unit Three

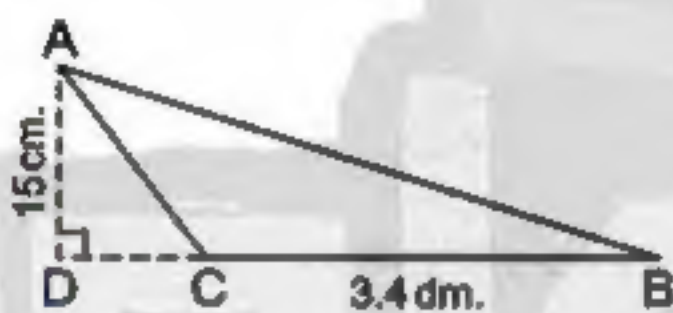
10 Which is larger in area, a piece of land in the shape of a triangle with base length 10 m. and its corresponding height 3 m. or a garden in the shape of a square with side length 5 m. ?

11 Which is larger in area, a garden in the shape of a triangle with base length 8 m. and its corresponding height 7 m. or a land in the shape of a rectangle with length 8 m. and width 3 m. ?

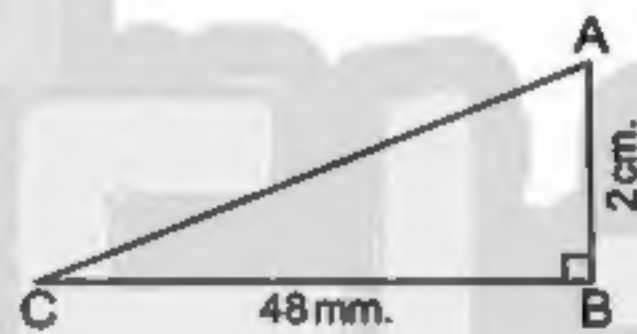
12 Which area is greater : a triangle with base length = 3.25 dm. and its corresponding height = 4 dm. or a rectangle with dimensions of 26 cm. and 20 cm. ? Find the difference in cm^2 .

13 Find the area of $\triangle ABC$ in each of the following :

(a)

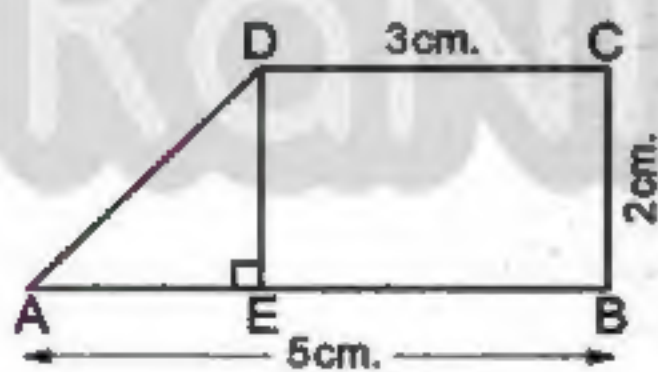


(b)



14 Find the area of each of the following figures :

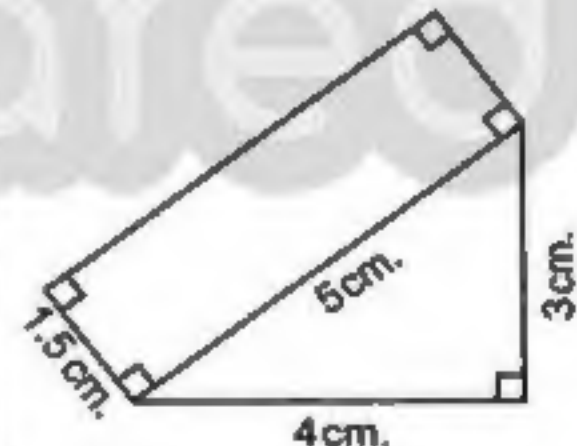
(a)



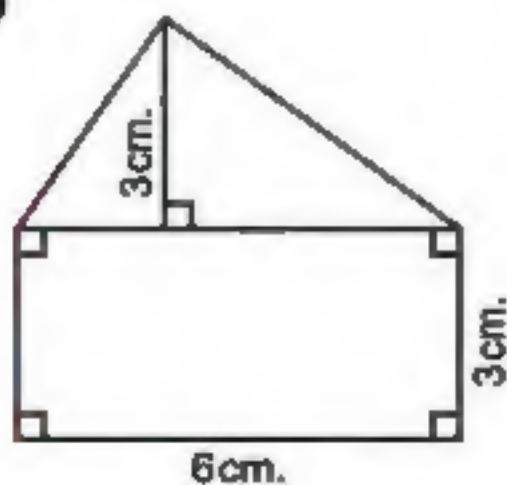
(b)



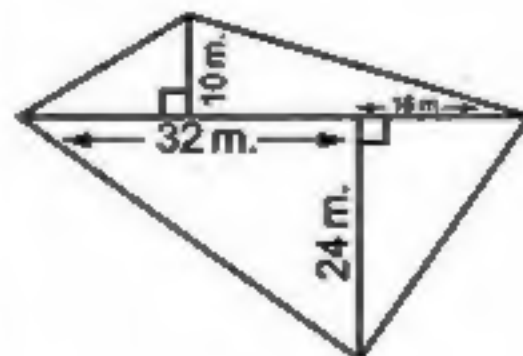
(c)



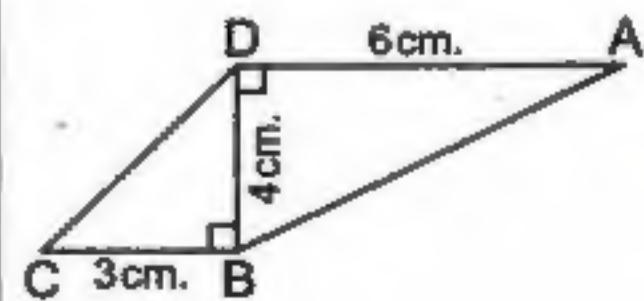
(d)



(e)

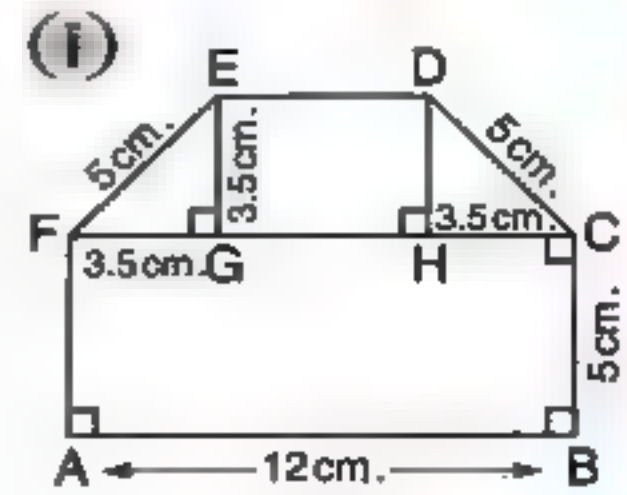
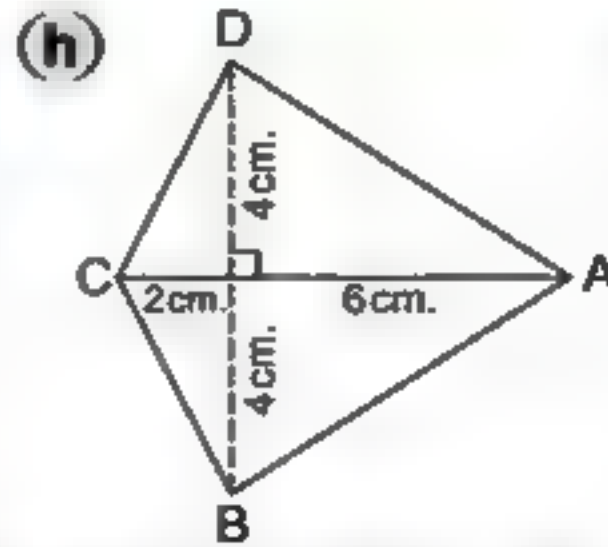
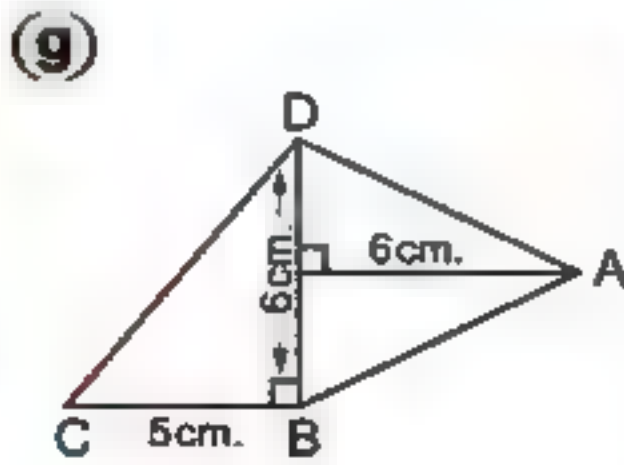


(f)

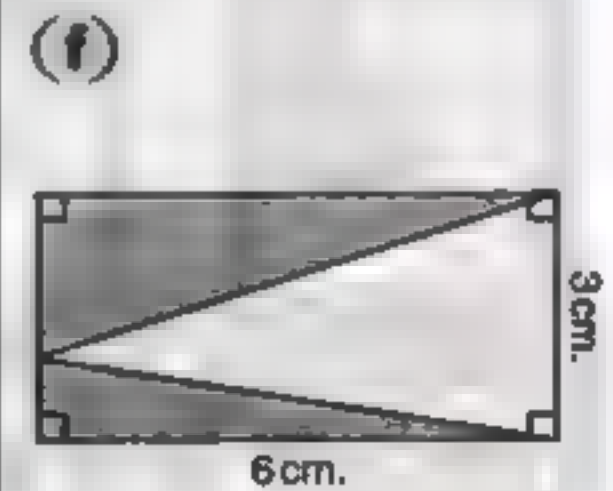
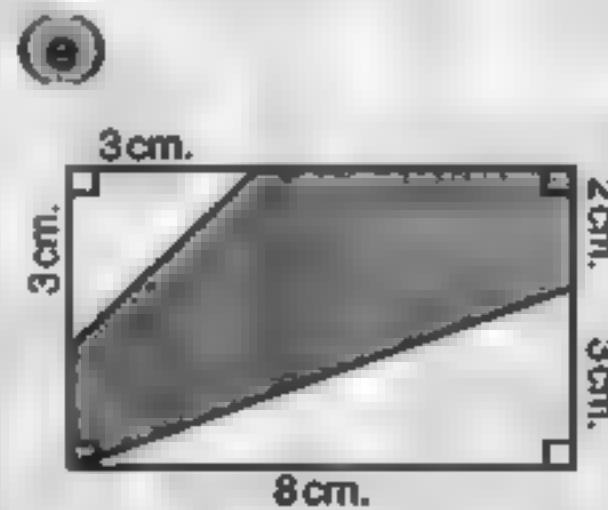
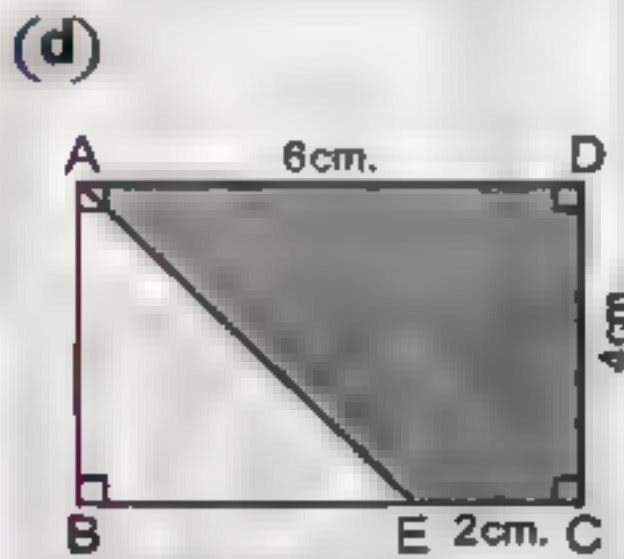
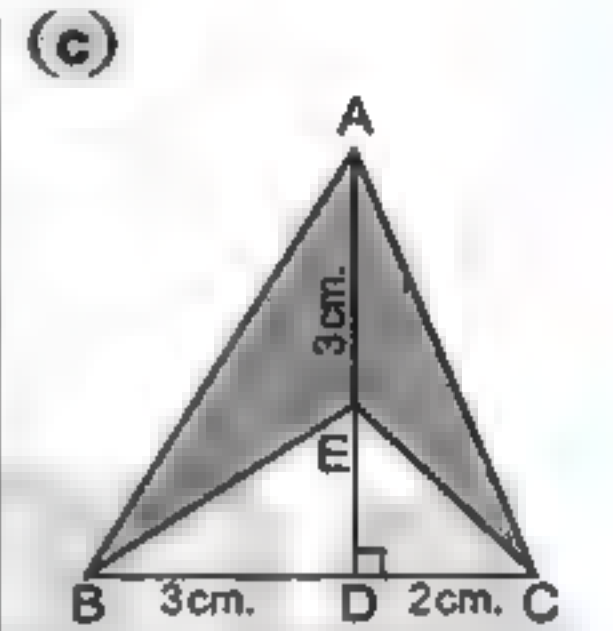
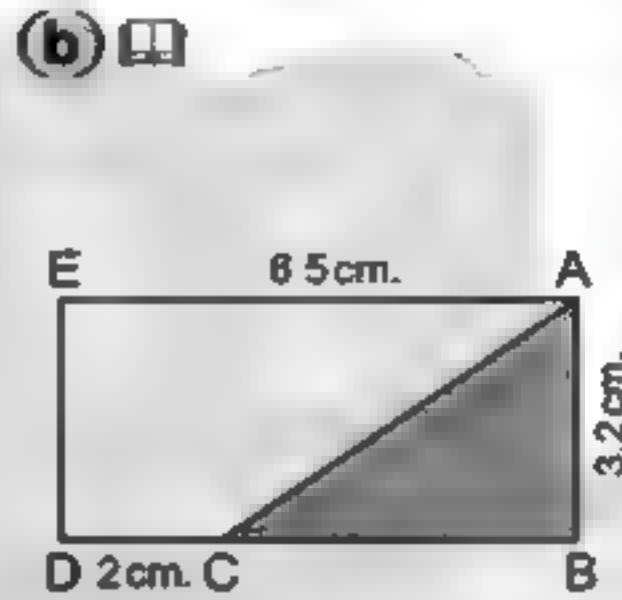
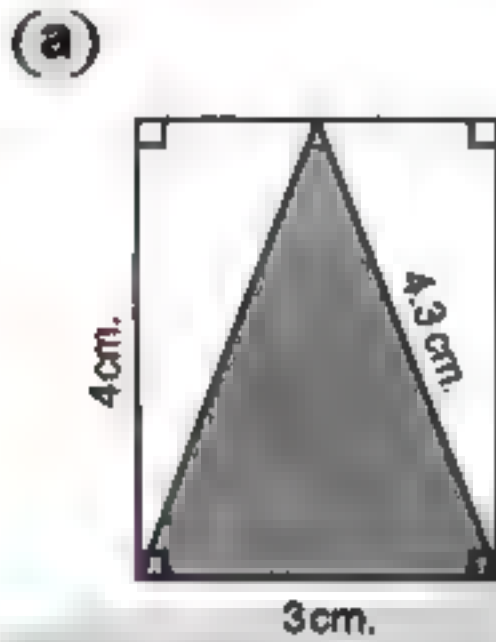




Lesson One



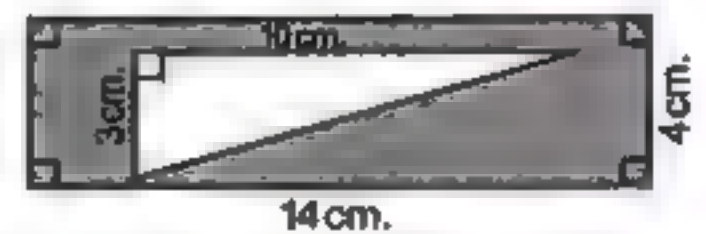
15 Find the area of the shaded part of each of the following :



16 Complete :

(a) In the opposite figure :

The shaded area = cm^2

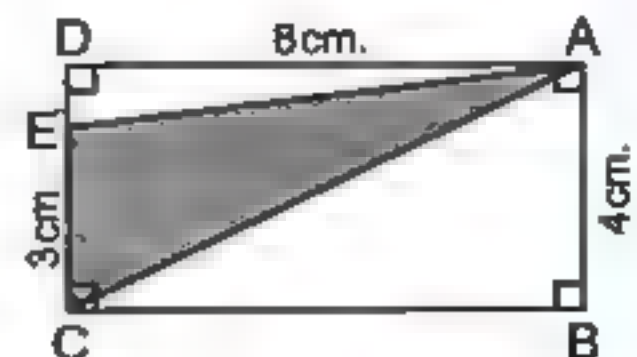


(b) In the opposite figure :

If $AB = 4 \text{ cm}$.

, $AD = 8 \text{ cm}$. and $CE = 3 \text{ cm}$.

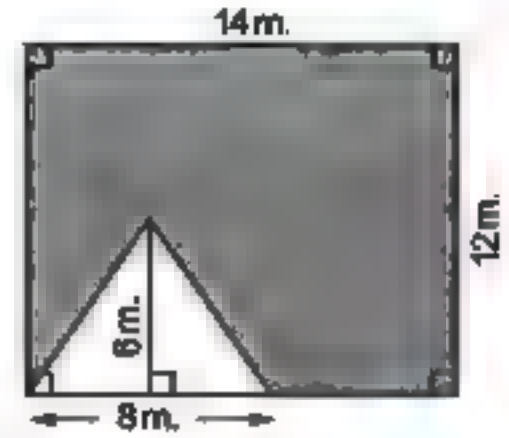
, then the shaded area = cm^2



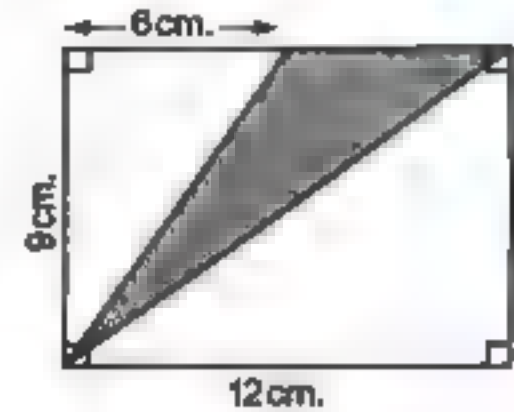
Unit Three

(c) In the opposite figure :

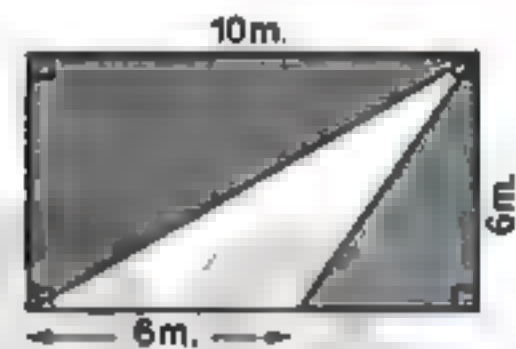
The shaded area = m^2



(d) The area of the coloured triangle shown in the opposite figure = cm^2



(e) The shaded area in the rectangle shown in the opposite figure is m^2

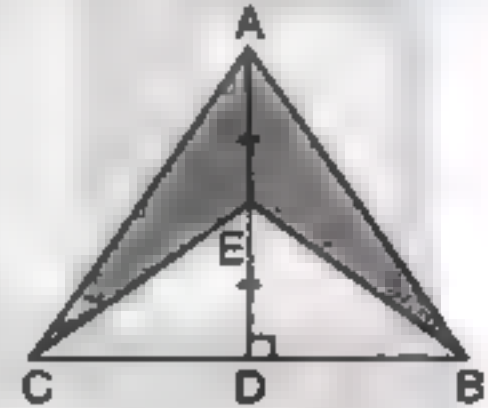


17 In the opposite figure :

$\overline{AD} \perp \overline{BC}$, $BC = 4$ cm.

$AD = 3$ cm. and E is the midpoint of \overline{AD}

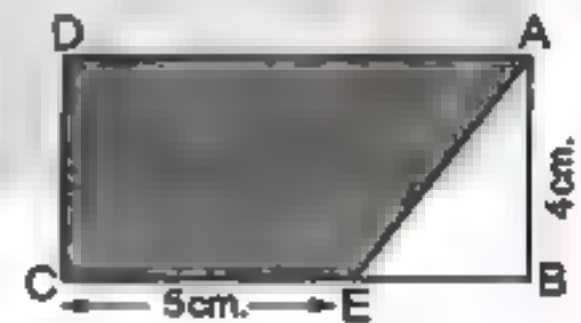
Calculate the area of the coloured part.



18 In the opposite figure :

ABCD is a rectangle of area 32 cm^2 and

$EC = 5$ cm. Calculate the area of AECD

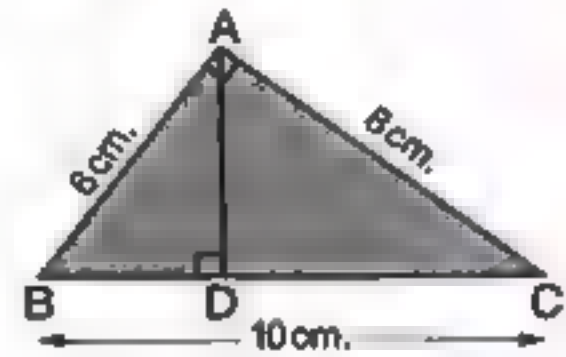


19 In the opposite figure :

ABC is a right-angled triangle at A

, $\overline{AD} \perp \overline{BC}$,

Find the area of $\triangle ABC$ and the length of \overline{AD}

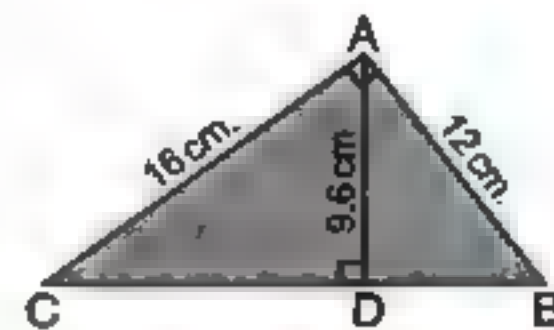


20 In the opposite figure :

ABC is a right-angled triangle , $\overline{AD} \perp \overline{BC}$,

$AB = 12$ cm. , $AC = 16$ cm. and $AD = 9.6$ cm.

Find the area of the triangle ABC and the length of \overline{BC}

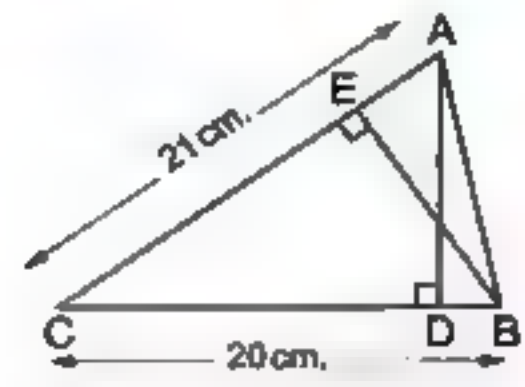




Lesson One

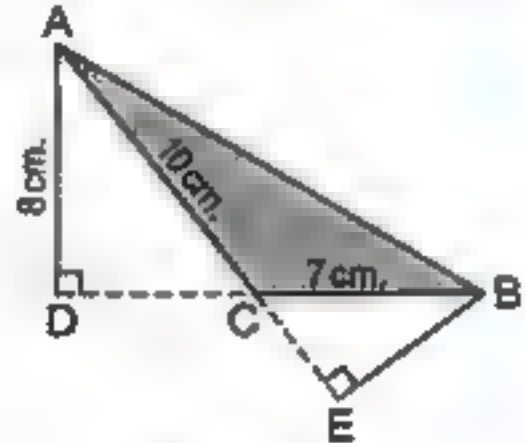
21 In the opposite figure , find :

- (a) The area of $\triangle ABC$, where $BE = 12$ cm.
 (b) The length of \overline{AD}



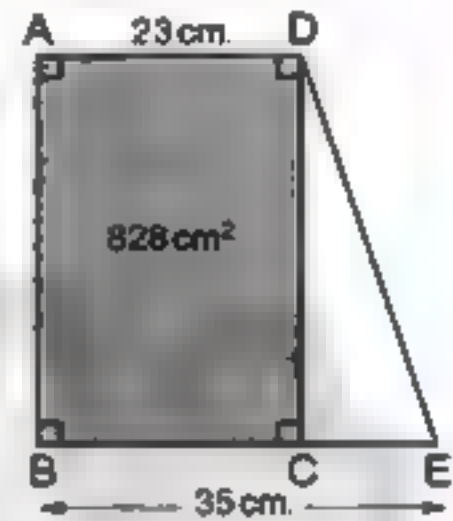
22 In the opposite figure :

ABC is a triangle in which $BC = 7$ cm.
 and $CA = 10$ cm. If $\overline{AD} \perp \overline{BC}$, $\overline{BE} \perp \overline{AC}$
 and $AD = 8$ cm. , find the length of \overline{BE}



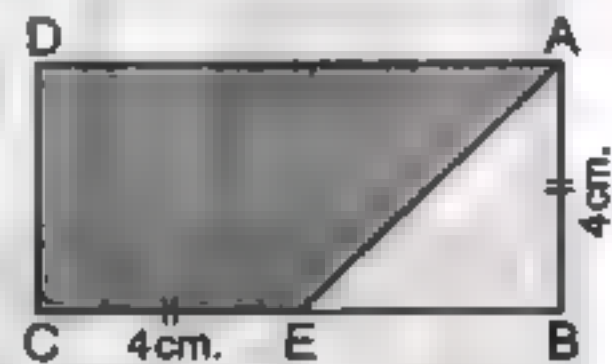
23 In the opposite figure :

ABCD is a rectangle whose area is 828 cm^2 ,
 $E \in \overline{BC}$, $AD = 23$ cm. and $BE = 35$ cm.
 Find the area of $\triangle DCE$



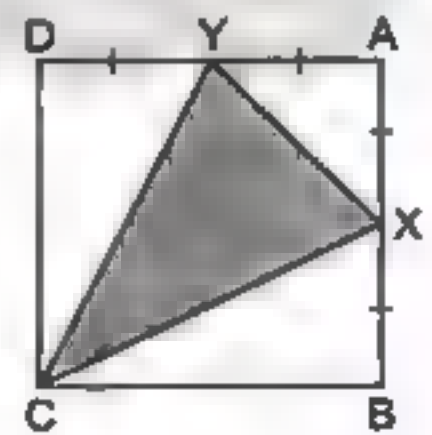
24 In the opposite figure :

If the perimeter of the rectangle ABCD
 is 26 cm. , and $AB = CE = 4$ cm. ,
 Find the area of $\triangle ABE$
 and the area of the figure AECD



25 In the opposite figure :

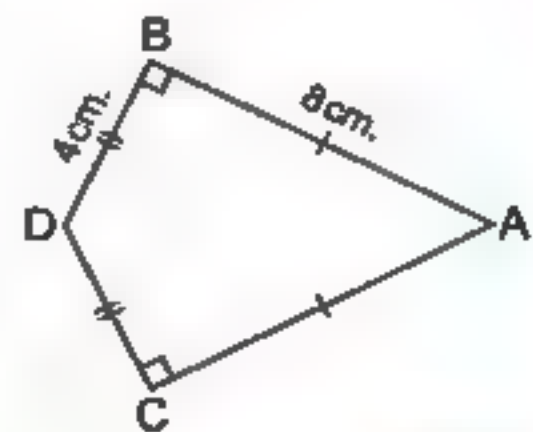
The side length of the square ABCD is 8 cm.
 , X is the midpoint of \overline{BA} , Y is the midpoint of \overline{DA} ,
 Find the area of the three non coloured triangles ,
 then conclude the area of $\triangle XCY$.



Challenge

26 In the opposite figure :

If $AB = AC = 8$ cm. , $m(\angle B) = m(\angle C) = 90^\circ$
 and $DB = DC = 4$ cm. ,
 Find the area of the opposite figure.



Unit Three

From the school book

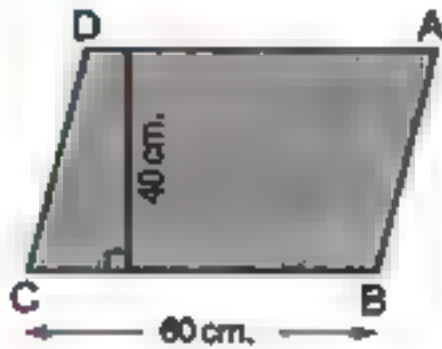
Exercise

2

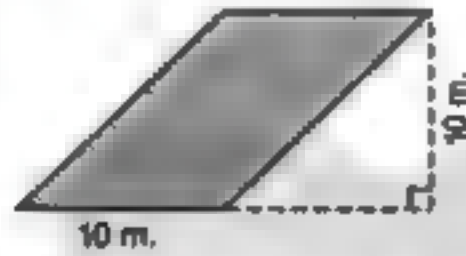
Area of parallelogram

1 Find the area of each parallelogram :

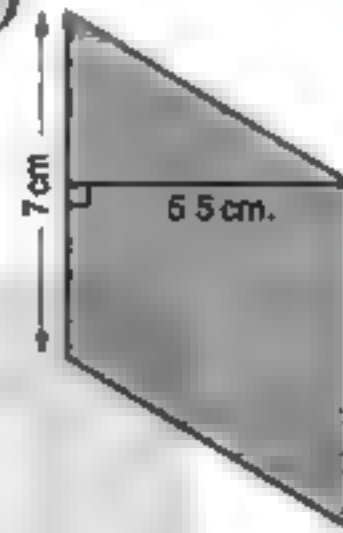
(a)



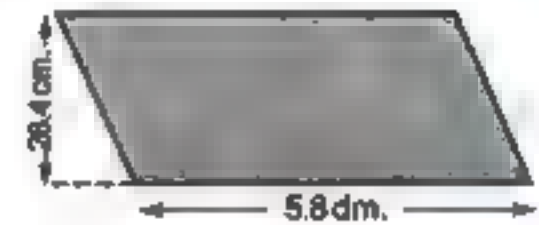
(b)



(c)

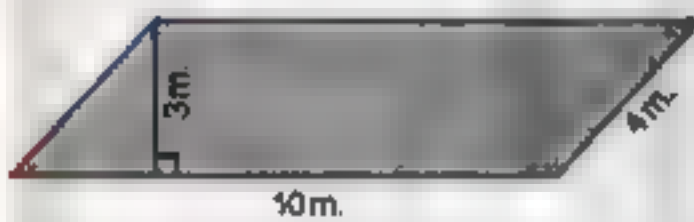


(d)

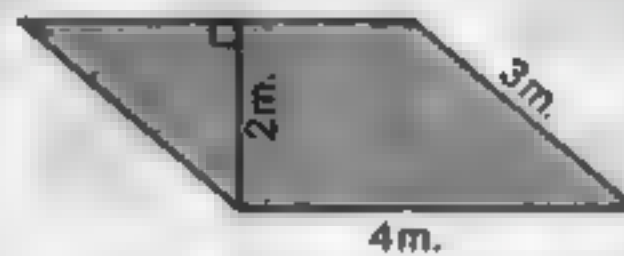


2 Find the area of each of the following parallelograms :

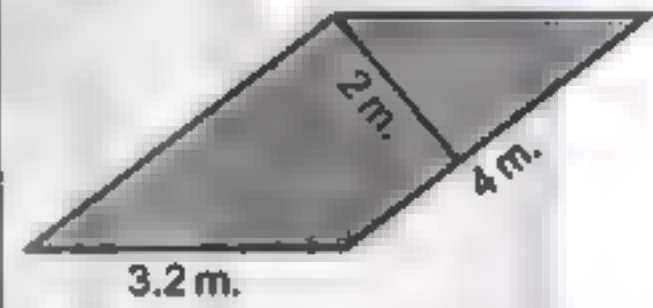
(a)



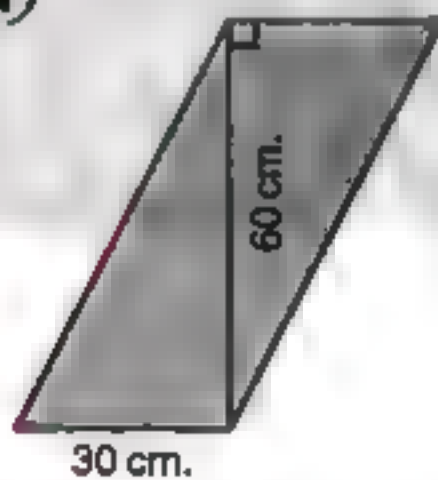
(b)



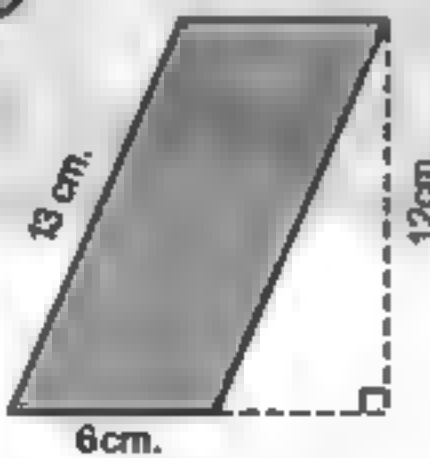
(c)



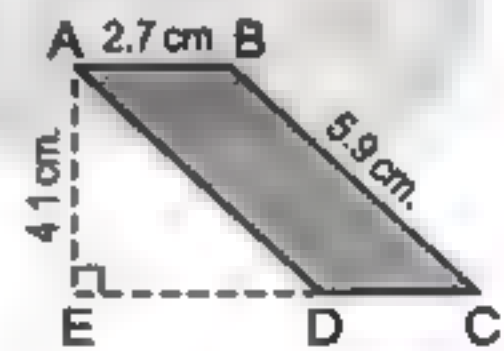
(d)



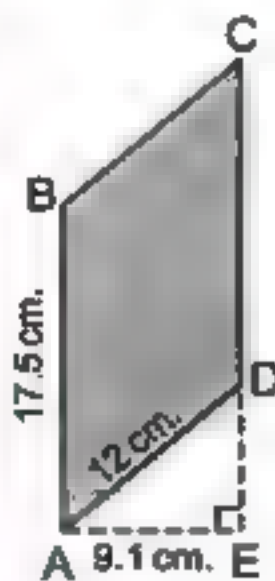
(e)



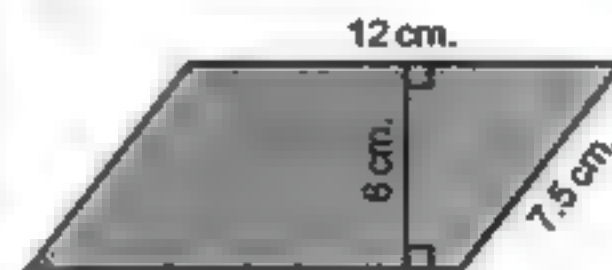
(f)



(g)



(h)





Lesson Two

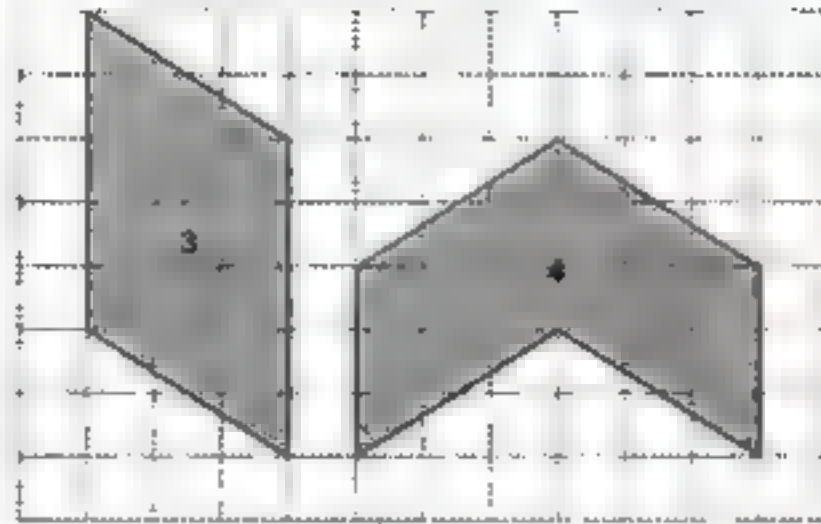
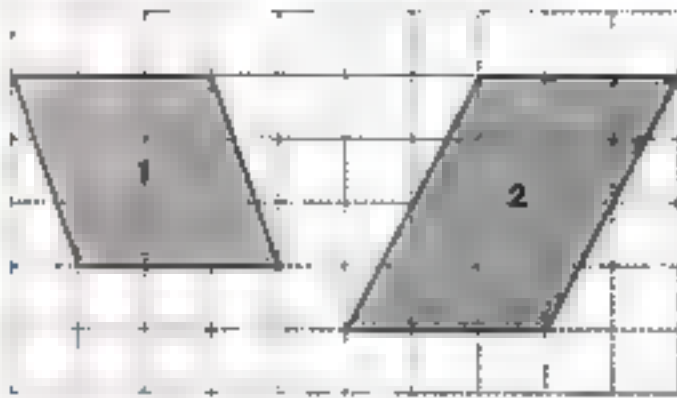
- 3 A parallelogram has a base of length 14 m. and a corresponding height 9 m. Find its area.
- 4 If the height of a parallelogram is 34.6 cm. and the corresponding base is of length 15.2 cm. , what is the area of the parallelogram ?
- 5 Find to the nearest hundredth the area of a parallelogram whose base length is 34.7 cm. and height 28.17 cm.
- 6 If the area of a parallelogram is 36 cm^2 and its height is 9 cm. , then find the length of the corresponding base of this height.
- 7 If the area of a parallelogram is 90 mm^2 and the length of the base is 9 mm. , find the height.
- 8 Complete the table for parallelograms :

Length of the base in cm.	Corresponding height in cm.	The area in cm^2
8	3.25	.....
6.1	.....	54.9
.....	4.2	63

- 9 Which area is greater : the area of a parallelogram whose base length is 15.7 cm. and height 9.4 cm. or the area of a triangle whose base length is 14 cm. and height 18 cm.
- 10 Find the area of the parallelogram ABCD if $AB = 6 \text{ cm}$, $BC = 12 \text{ cm}$, and the greater height is 4 cm.

Unit Three

11 Complete to find the area of the colored figures :



- Area of figure 1 = \times = square units.
- Area of figure 2 = \times = square units.
- Area of figure 3 = \times = square units.
- Area of figure 4 = + = square units.

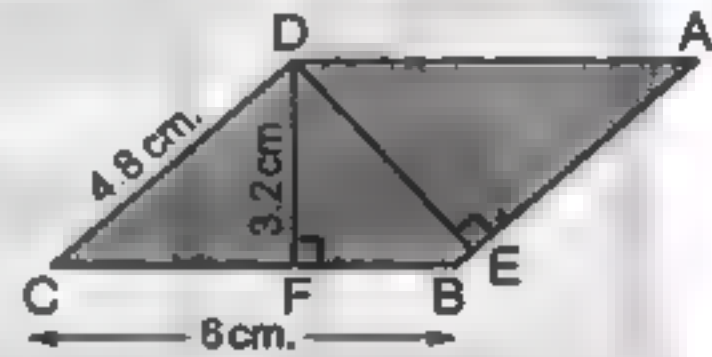
12 In the opposite figure , complete :

Area of the parallelogram

$$ABCD = BC \times DF = \dots\dots\dots \text{cm}^2$$

also , area of the parallelogram = \times DE

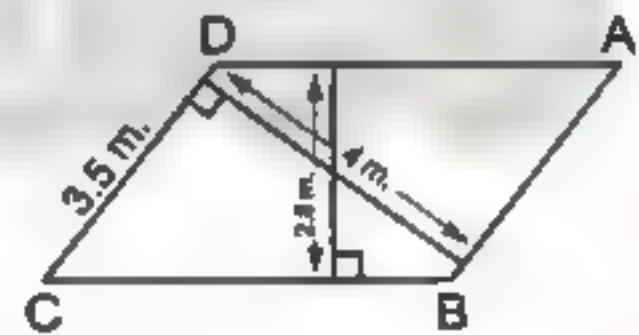
deduce the length of \overline{DE}



13 In the opposite figure :

Find the area of the parallelogram ABCD ,

then find the length of \overline{BC}

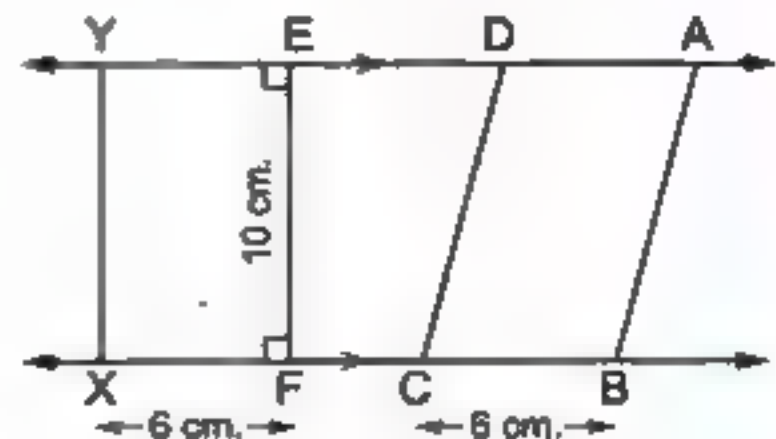


14 In the opposite figure :

$\overline{AY} \parallel \overline{BX}$, ABCD is a parallelogram

and EFXY is a rectangle

Compare the area of the parallelogram
and the area of the rectangle.





Lesson Two

15 In the opposite figure : Complete :

ABCD is a parallelogram where ,

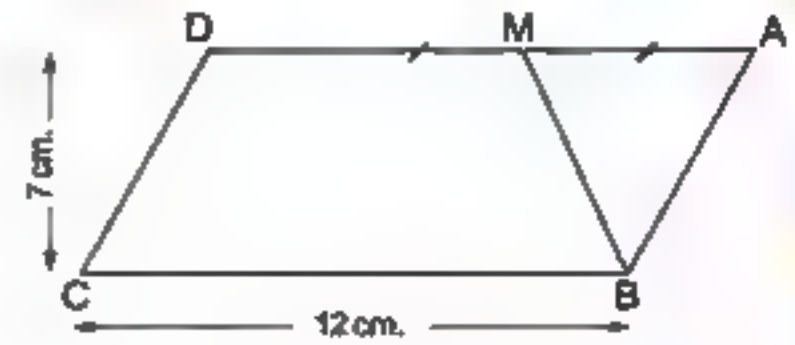
BC = 12 cm. , AD = cm. ,

AM = cm.

the area of the parallelogram ABCD = cm^2

the area of the triangle ABM = cm^2

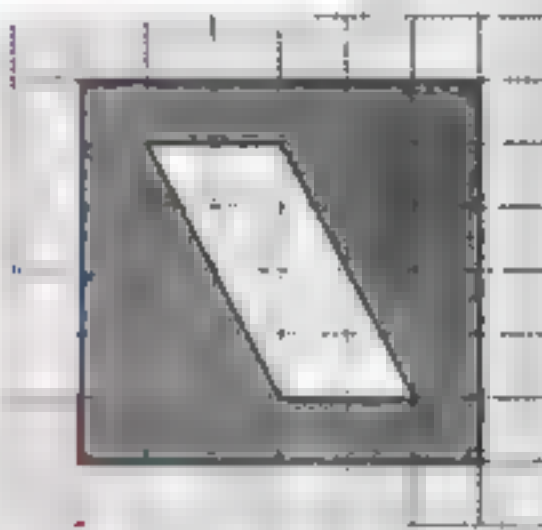
the area of the figure MBCD = cm^2



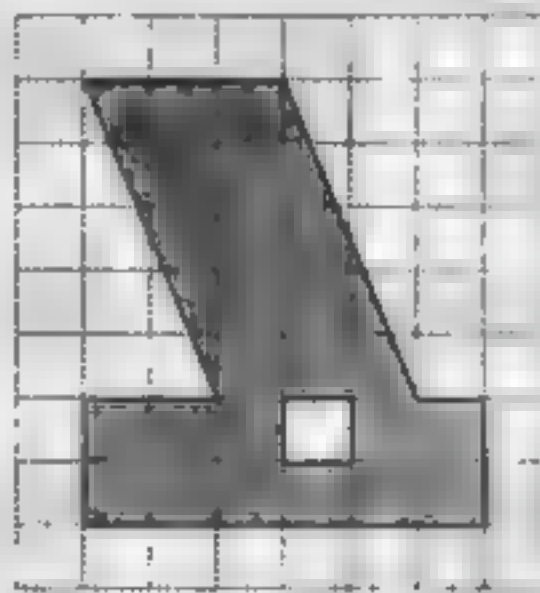
16 The length of the base is equal to the corresponding height in a parallelogram. What is the base length if the area of the parallelogram is 81 cm^2 ?

17 Find the area of the shaded part :

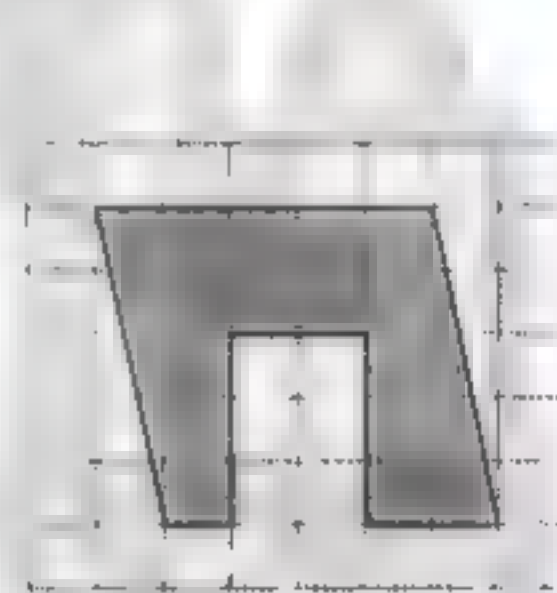
(a)



(b)



(c)



Challenge

18 What happens to the area of a parallelogram if its height is doubled ?

19 ABCD is a parallelogram of area 375 cm^2 , E is a point on \overline{CD} , find the area of the triangle AEB

20 Patterns : Khaled drew parallelograms this way : the first with base length = 2 cm. and height = 2 cm. the second with base length = 2 cm. and height = 4 cm. the third with base length = 2 cm. and height = 8 cm. and continued with this pattern. Find the area of the eighth parallelogram according to his pattern.

Total mark

Sheet

1

On lesson 1 unit 1

25

- 1 Underline the natural numbers from the following numbers :

4, 7, 3.3, 0, $\frac{7}{5}$ and 1

5

- 2 Complete using " \in , \notin , \subset or $\not\subset$ ":

(a) $\{1, \frac{1}{2}\} \dots\dots\dots \mathbb{N}$ (b) $100 \dots\dots\dots \mathbb{N}$ (c) $23.4 \dots\dots\dots \mathbb{N}$ (d) $E \dots\dots\dots \mathbb{N}$ (e) $\emptyset \dots\dots\dots \mathbb{N}$

5

- 3 Complete :

(a) $\{0\} \cap E = \dots\dots\dots$ (b) $\{2, 3, 4, 5, 6\} \cap O = \dots\dots\dots$ (c) $\mathbb{N} - O = \dots\dots\dots$ (d) $E \cap O = \dots\dots\dots$ (e) $\mathbb{N} \cup$ the set of counting numbers = $\dots\dots\dots$

5

- 4 Put (\checkmark) for the true statement and (\times) for the incorrect one :

(a) $2.3 \in \mathbb{N}$

()

(b) $E \cup O = \emptyset$

()

(c) $\mathbb{N} - E = O$

()

(d) $P \cap E = \{2\}$

()

(e) $\{0\} \subset E$

()

5

- 5 Choose the correct answer :

(a) $\mathbb{N} - \mathbb{C} = \dots\dots\dots$ (\emptyset or $\{0\}$ or E or O)(b) $\{1, 2, 3\} \cap E = \dots\dots\dots$ (2 or $\{1\}$ or $\{2\}$ or $\{2, 3\}$)(c) One million $\dots\dots\dots \mathbb{N}$ (\in or \notin or \subset or $\not\subset$)(d) The smallest odd number is $\dots\dots\dots$ (0 or 1 or 2 or 3)(e) $E \cap \mathbb{N} = \dots\dots\dots$ (\emptyset or 0 or \mathbb{N} or E)

5

Sheet

2

From lesson 1 unit 1
to lesson 2 unit 1

Total mark
25

1 Write down the represented set on the following number lines :



2 Represent on the number line each of the following sets :

(a) $\{1, 3, 6\}$

(b) $\{2\}$

(c) $\{5, 6, 7, \dots\}$

(d) $\{1, 2, 4\} \cup \{1, 3, 5\}$

3 List each of the following sets and represent them on the number line :

(a) The set of natural numbers less than 5

(b) The set of natural numbers greater than or equal 4

(c) The set of natural numbers between 2 and 7

(d) The set of even numbers less than $8\frac{1}{2}$

4 Complete :

(a) The smallest natural number is

(b) The smallest counting number is

(c) The set of natural numbers that are less than 7 is

(d) $C \cup \{0\} = \dots\dots\dots$

(e) $E \cap O = \dots\dots\dots$

5 Complete by using the suitable symbol " \in , \notin , \subset or $\not\subset$ " :

(a) $\{3\} \dots\dots N$

(b) $\{2, 5\} \cap \{2, 4\} \dots\dots O$

(c) $O \dots\dots C$

(d) $8.8 \dots\dots N$

(e) $0 \dots\dots C$

Sheet

3

From lesson 1 unit 1
to lesson 3 unit 1Total mark
25

1 Use the number line to find each of the following :

(a) $4 + 3$

(b) $7 - 5$

(c) $3 + 3$

(d) $6 - 6$

(e) $5 + 4 - 3$

5

2 Complete the following :

(a) The additive neutral element in \mathbb{N} is(b) $4 + (2 + 5) = (4 + 2) + 5$ (..... property)(c) $a + b = b + a$ (..... property)(d) If $a \in \mathbb{N}$, $b \in \mathbb{N}$, then $a + b \in \mathbb{N}$ (e) $14 + \dots = \dots + 14 = 14$

6

3 Put (✓) or (x) :

(a) The subtraction operation is an associative in \mathbb{N}

()

(b) $10 - 10 < 1 + 1$

()

(c) $12.12 \in \mathbb{N}$

()

(d) The smallest natural number is 1

()

(e) The natural number between $2\frac{1}{2}$ and 3.9 is 3

()

5

4 Use the properties of addition to find the value of :

(a) $46 + 17 + 64$

(b) $71 + 82 + 29 + 18$

(c) $174 + 143 + 126 + 157$

6

5 The following number line shows 3 numbers "X , Y and Z" :



Complete using ">" or "<" :

(a) $X \dots Z$ (b) $X \dots Y$ (c) $Z \dots Y$

3

Sheet

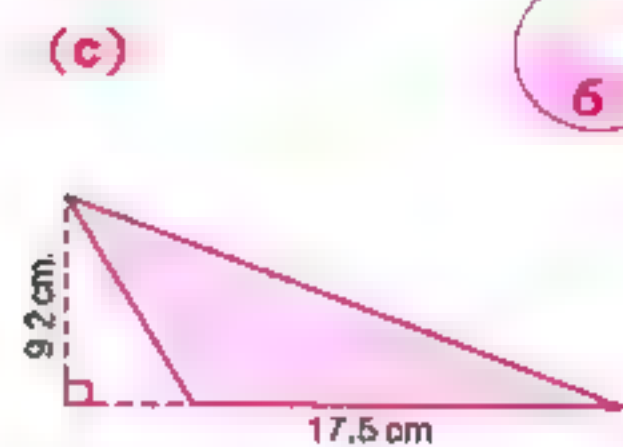
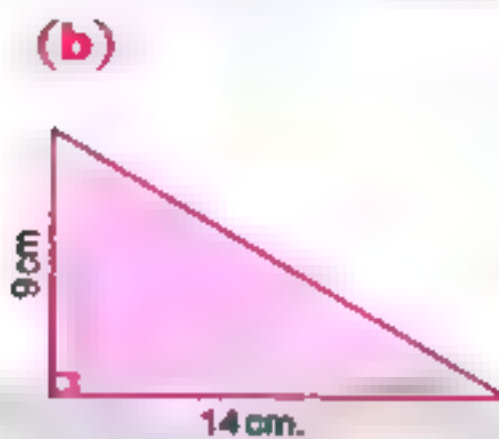
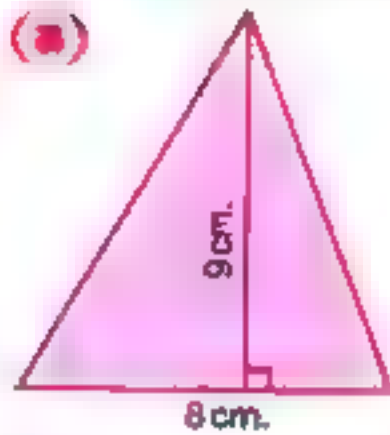
1

On lesson 1 unit 3

Total mark

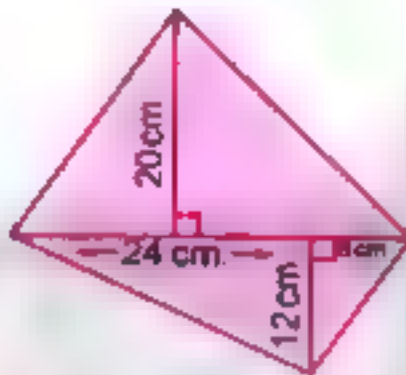
25

1 Find the area of each of the following triangles :

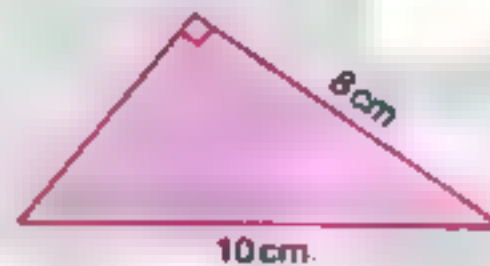


6

2 (a) In the figure below :
What is the area of this quadrilateral ?



(b) In the figure below : If the area of the shaded triangle is 24 cm^2 . Calculate its perimeter.



4

3 (a) Calculate the area of an equilateral triangle if its perimeter is 30 cm. and its height is 8.66 cm.

(b) Which is larger in area ? A piece of land in the shape of a triangle with a base of 12 m. and a height of 9 m. or a garden in the shape of a square with side length 8 m. ?

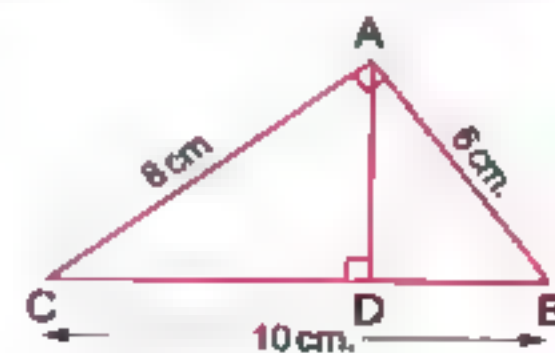
6

4 In the opposite figure :

ABC is a right-angled triangle at A ,
 $AB = 6 \text{ cm}$, $AC = 8 \text{ cm}$, $BC = 10 \text{ cm}$.
 $\overline{AD} \perp \overline{BC}$, find :

(1) Area of $\triangle ABC$

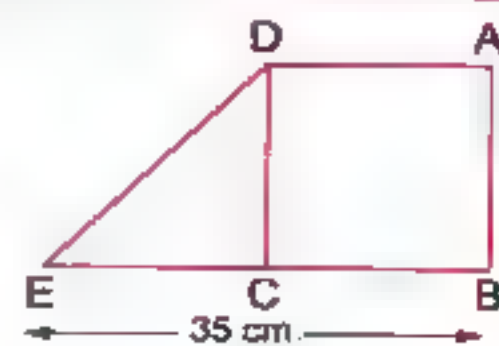
(2) Length of \overline{AD}



4

5 In the opposite figure :

ABCD is a square , its perimeter is 60 cm.
, $E \in \overline{BC}$, $BE = 35 \text{ cm}$.
Find the area of the figure ABED



5

15

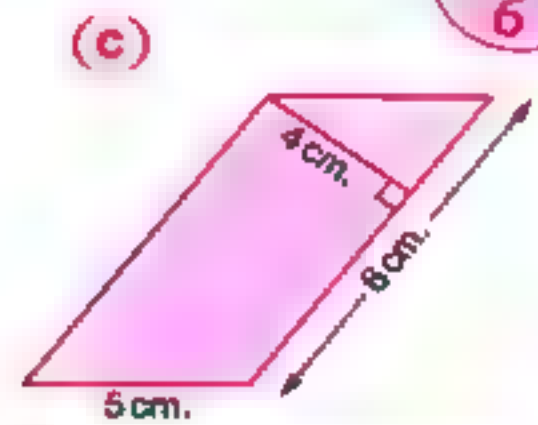
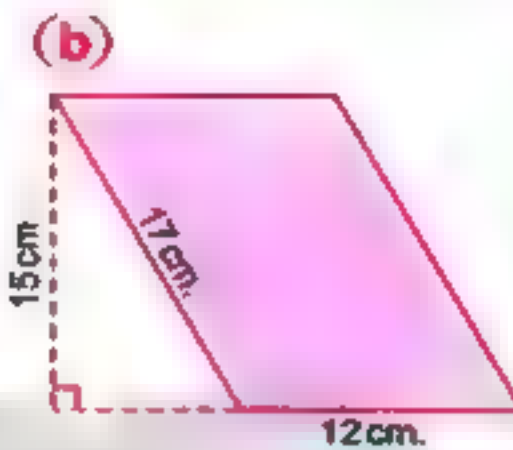
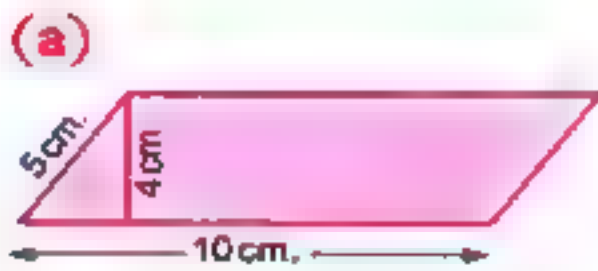
Sheet

2

From lesson 1 unit 3
to lesson 2 unit 3

Total mark
25

Find the area of each of the following parallelograms :



- 2 (a) Find the height of parallelogram with area 28 cm^2 and base 4 cm.
(b) ABCD is a parallelogram of area 180 cm^2 , $AB = 60 \text{ cm}$, $CD = 45 \text{ cm}$.
Find its smallest height.

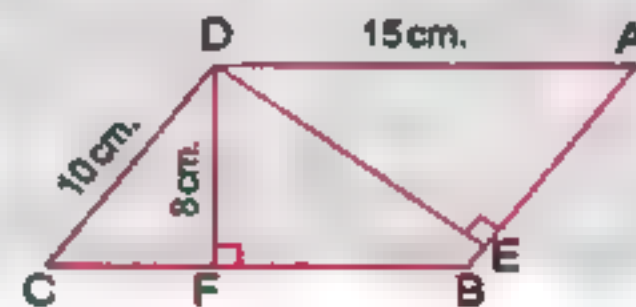
3 Which is greater ?

The area of the square of side length 7 cm. or the area of the parallelogram of base 9 cm. and height 5 cm.

- 4 (a) Find the area of the triangle whose base length is 10 cm. and the corresponding height is 9 cm.

(b) In the opposite figure :

ABCD is a parallelogram in which
 $AD = 15 \text{ cm}$, $CD = 10 \text{ cm}$, $DF = 8 \text{ cm}$,
and $DE \perp AB$, calculate the length of DE

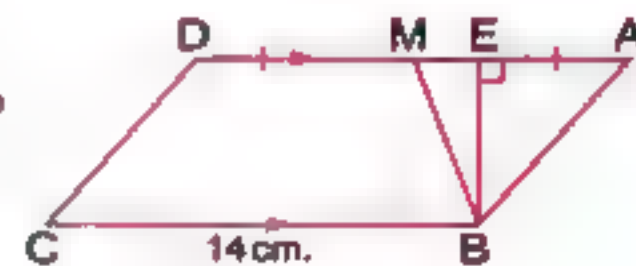


5 In the opposite figure :

ABCD is a parallelogram in which $BC = 14 \text{ cm}$,
 $BE = 6 \text{ cm}$, M is the midpoint of \overline{AD}

Complete :

- (1) $AD = \dots\dots\dots \text{ cm}$. (2) $AM = \dots\dots\dots \text{ cm}$.
(3) The area of $\square ABCD = \dots\dots\dots \text{ cm}^2$
(4) The area of $\triangle ABM = \dots\dots\dots \text{ cm}^2$
(5) The area of figure MBCD = $\dots\dots\dots \text{ cm}^2$



EXERCISE 1

Set of Natural Numbers ()

1 Circle each natural number:

6 , $\frac{3}{4}$, 1 , zero , 0.4 , 127 , 5.9 , 5678 and $\frac{8}{2}$

2 Complete by using the suitable symbol from (\in , \notin , \subset , \emptyset):

a) $\{2\} \subset \mathbb{N}$

b) $\{2\} \in \mathbb{N}$

c) $\{55\} \subset \mathbb{N}$

d) $0.7 \in \mathbb{N}$

e) $\{1, 3\} \cap \{2, 4\} = \emptyset$

f) $\text{Zero} \in \mathbb{N}$

g) $22.22 \in \mathbb{N}$

h) $\{2, 0.2\} \subset \mathbb{N}$

3 In each of the following, choose the correct answer from the given ones:

1 $\mathbb{N} \cap \mathbb{C} = \dots$

- a) \mathbb{C} b) \mathbb{N}
c) $\{0\}$ d) $\{3\}$

2 $\mathbb{C} - \{0\} = \dots$

- a) \mathbb{C} b) \mathbb{N}
c) $\{0\}$ d) $\{1, 2\}$

3 $\mathbb{N} \cap \{0\} = \dots$

- a) \mathbb{C} b) \mathbb{N}
c) $\{0\}$ d) $\{5\}$

4 $\mathbb{N} \cup \mathbb{C} = \dots$

- a) \mathbb{C} b) \mathbb{N}
c) $\{0\}$ d) $\{1, 2, 3\}$

5 $\mathbb{C} \cap \{0\} = \dots$

- a) $\{0\}$ b) \mathbb{N}
c) \mathbb{C} d) \emptyset

6 $\mathbb{N} - \{0\} = \dots$







- a) $\{0\}$ b) \mathbb{N}
c) \mathbb{C} d) \emptyset

4 Put (\checkmark) or (\times):

- a) $7.2 \in \mathbb{N}$ ()
b) $\{0\} \subset \mathbb{N}$ ()
c) $\{0\} \cup \{1, 2, 3\} = \mathbb{N}$ ()
d) The greatest natural number is milliard. ()
e) The set of natural numbers is infinite. ()

- f) The weight of an object in kilograms $\in \mathbb{N}$. ()
- g) The number of pages of a book $\in \mathbb{N}$. ()
- h) $\{0\} \notin \mathbb{N}$ ()
- i) $\{0, 1, 2\} \cap \{0, 5, 10\} = \emptyset$ ()

5 Complete the following:

- a)   The smallest counting number is
- b)   The smallest natural number is
- c) The set of natural numbers greater than 27 by listing method is
- d)   The set of natural numbers less than 5 is
- e) The set of natural numbers that is included between 4 and 12 is
- f) The set of multiples of 3 less than 27 is
- g) $\{\text{million}\} \cup \mathbb{N} = \dots$
- h) $\emptyset \cap \mathbb{C} = \dots$

6 Write down two sets, one of them is a subset of \mathbb{N} and the other one is not a subset of \mathbb{N} .



7 Complete by using (\in or \notin):

- | | | | | |
|------------------------------|----------------------|--------------|-------------------------------|--------------|
| a) $(27.6 + 9.4)$ | <input type="text"/> | \mathbb{C} | b) $(35 + 0.625)$ | \mathbb{N} |
| c) $(178.4 \times 2.5 - 46)$ | | \mathbb{N} | d) $(27.85 - \frac{557}{20})$ | \mathbb{C} |

EXERCISE 2

Some Subsets of Natural Numbers



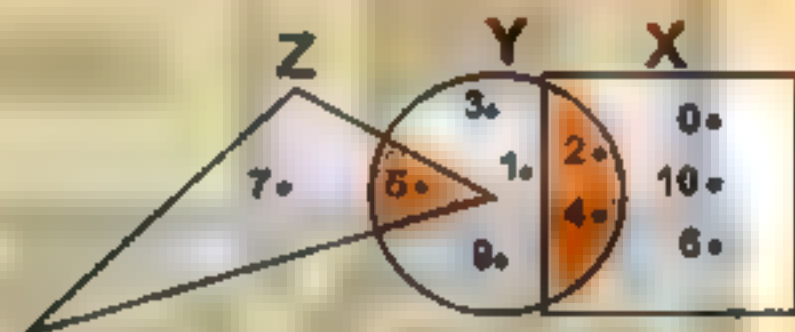
Interactive Exercise

1 Mark (✓) for the correct statement and (X) for the incorrect one:

- a) The set of even numbers $\subset \mathbb{N}$. ()
- b) The set of odd numbers $\subset \mathbb{N}$. ()
- c) The weight of an object in kg $\in \mathbb{N}$. ()
- d) Your phone numbers $\in \mathbb{N}$. ()
- e) The number of pages of this book $\in \mathbb{N}$. ()
- f) The smallest prime number is 1. ()
- g) The set of prime numbers $\not\subset \mathbb{N}$. ()
- h) $2 \in$ the set of prime numbers. ()

2 Using the following Venn diagram, complete:

- a) $X \cap Y = \dots\dots\dots$
- b) $Y \cap Z = \dots\dots\dots$
- c) $X \cup Y = \dots\dots\dots$
- d) $(X \cup Y) \cup Z = \dots\dots\dots$
- e) $(X \cap Y) \cap Z = \dots\dots\dots$
- f) $X - Y = \dots\dots\dots$



3 If $\mathbb{N} = \{0, 1, 2, 3, \dots\}$, $\mathbb{O} = \{1, 3, 5, \dots\}$, $\mathbb{E} = \{0, 2, 4, \dots\}$, $\mathbb{P} = \{2, 3, 5, 7, \dots\}$ and $\mathbb{C} = \{1, 2, 3, 4, \dots\}$, then complete each of the following:

- a) $\mathbb{E} \cap \mathbb{P} = \dots\dots\dots$
- b) $\mathbb{C} \cap \mathbb{N} = \dots\dots\dots$
- c) $\mathbb{E} \cap \mathbb{O} = \dots\dots\dots$
- d) $\mathbb{E} \cup \mathbb{O} = \dots\dots\dots$
- e) $\mathbb{N} \cup \mathbb{O} = \dots\dots\dots$
- f) $\{15, 6, 0, 4\} \cap \mathbb{N} = \dots\dots\dots$
- g) $\{2\} \cap \mathbb{P} = \dots\dots\dots$
- h) $\{0\} - \mathbb{N} = \dots\dots\dots$

4 If $U = \{x : x \in \mathbb{N}, 5 \leq x < 15\}$, $X = \{5, 7, 11, 13\}$, $Y = \{7, 8, 9, 10, 11\}$ and $Z = \{8, 9, 10, 11\}$,

- Find by listing method each of: $X - Y$, $Z - X$, $X \cap Y$, $Y \cap Z$
- Find by listing method each of: $X \cup Y$, $Y \cup Z$
- Find: X' , Y' , Z' , and represent them on the number line.

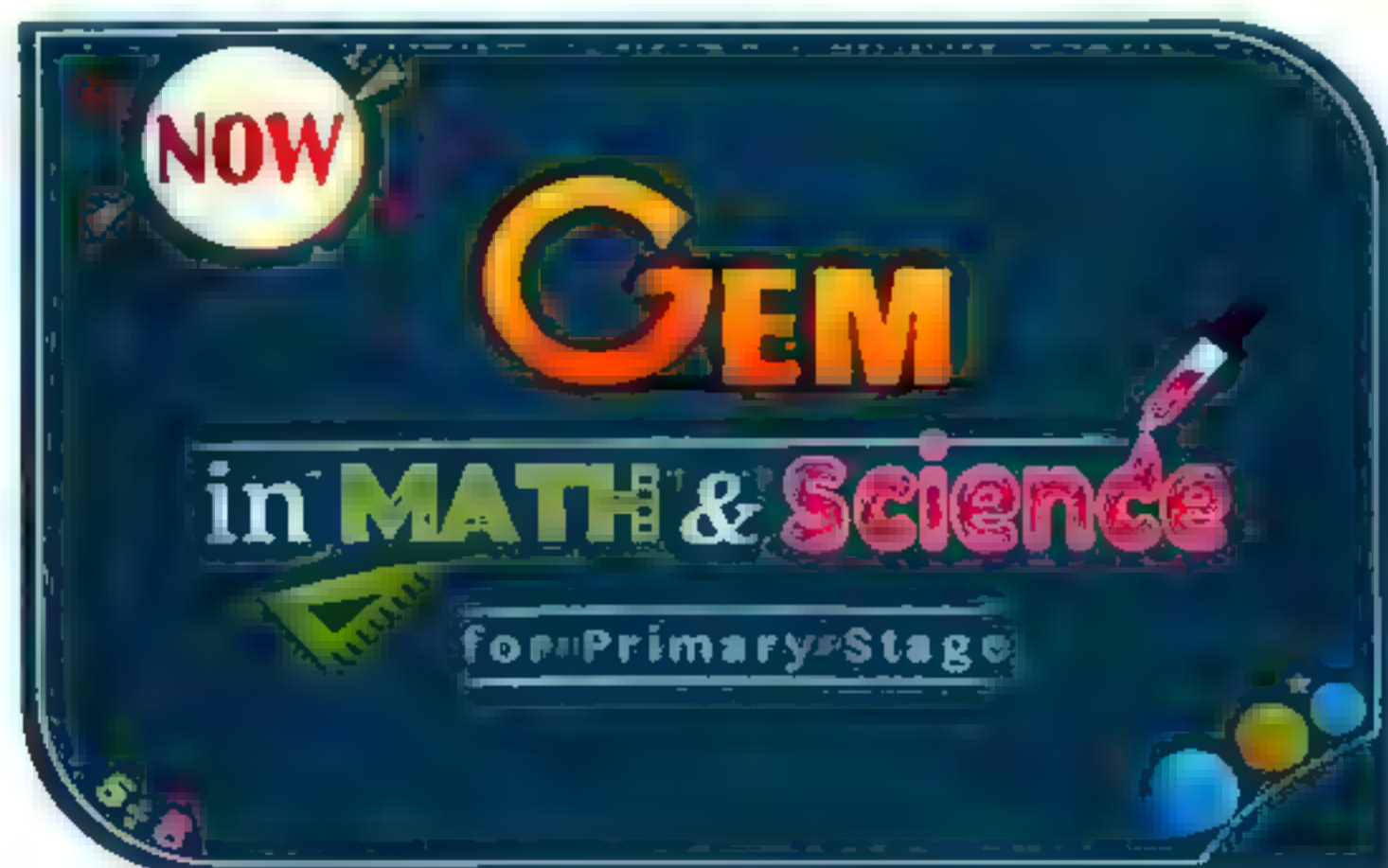
5 If Y is the set of the factors of number 60, find:

- Y
- $Y \cap \mathbb{E}$
- $Y \cap \mathbb{O}$
- $Y \cap \mathbb{N}$
- $Y \cup \mathbb{N}$
- $Y \cap \mathbb{P}$

FOR EXCELLENT PUPILS

6 If $U = \mathbb{N}$ and X is the set of multiples of 3 less than 15, then complete each of the following:

- \mathbb{E}'
- \mathbb{O}'
- \mathbb{C}'
- $\mathbb{N} - X'$



EXERCISE 3

Ordering and Comparing of Natural Numbers



Interactive Exercise

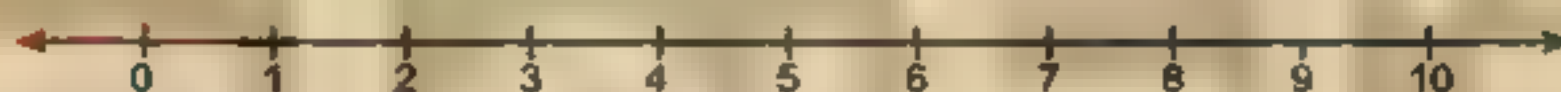
1 Write by listing method the set of numbers represented in each case:



2 Arrange each of the following numbers ascendingly, then represent them on the number line:

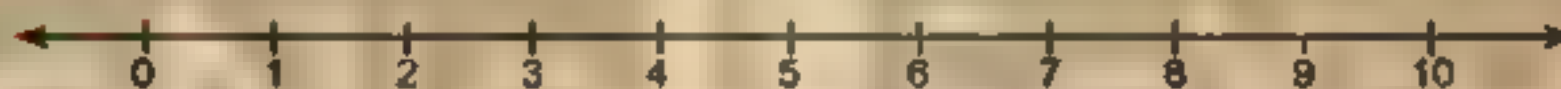
a) 4, 0, 2, 5, 9 and 7.

The order is



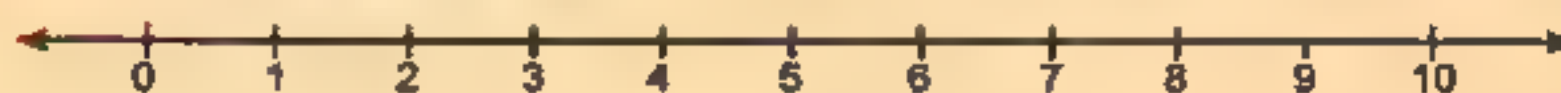
b) 5, 0, 3, 4 and 9.

The order is



c) 7, 8, 6, 4 and 0.

The order is



3 Represent the set $X \cup Y$ on the number line:

where $X = \{1, 2, 4, 5\}$ and $Y = \{5, 6, 7\}$, then find: $X \cap Y$.

.....

.....

4 Represent each of the following sets on the number line:

a) $X = \{0, 2, 4, 6, 8\}$

b) $Y = \{1, 3, 5, 7, 9\}$.

c) $\{0, 2, 6\} \cap \{2, 5, 6\}$.

d) $\{6, 7\} \cup \{6, 8, 9, 10\}$.

e) $\{3, 5, 7, 9\} - \{3, 7, 8\}$.

5 If a, b, c, d and e are natural numbers, and they are represented on the number line as shown on the figure below:



First: Complete using ($<$ or $>$), giving the reason:

- | | | | | | |
|--------|-----|---------------|--------|-----|---------------|
| a) a | b | because | b) b | e | because |
| c) c | e | because | d) e | b | because |
| e) a | d | because | f) d | c | because |

Second: Arrange the represented letters ascendingly:

The ascending order is , , and

6 Write the following by listing method, then represent them on the number line:

a) The set of natural numbers greater than 5.

b) The set of natural numbers less than 7.

c) The set of prime numbers less than 14.

d) The set of factors of 12.

e) The set of prime factors of 30.

f) The set of odd numbers.

g) The set of even numbers.

h) The set of natural numbers between 1 and 4.

i) The set of natural numbers between 2.35 and 9.7.



7 Write $[>, < \text{ or } =]$:

a) 908 9008

b) 5075 5057

c) 2239 2229

d) $x + 18$ $x + 17$, where $x \in \mathbb{N}$

e) $x - 18$ $x - 17$, where x is a natural number greater than 20.

f) If $x \in \{30, 21, 32, 33\}$, then x 75

g) If $y \in \{20, 21, 22, 23, 24\}$, then y 18

h) If $z \in \{35\}$, then z 35

8 Write the following by listing method, then represent them on the number line:

a) $X = \{a : a \in \mathbb{N}, a < 5\}$

b) $Y = \{a : a \in \mathbb{N}, a \leq 1\}$.

c) $Z = \{a : a \in \mathbb{N}, a < 9\}$.

d) $L = \{a : a \in \mathbb{N}, a \geq 3\}$.

e) $M = \{a : a \in \mathbb{N}, 2 \leq a < 5\}$.

f) $F = \{a : a \in \mathbb{N}, 8 < a \leq 10\}$.

g) $T = \{a : a \in \mathbb{N}, 0 < a < 4\}$.

h) $A = \{a : a \in \mathbb{N}, 3 \leq a < 7\}$.

9 Rewrite the following statements using $(>, \geq, < \text{ or } \leq)$:a) x is less than 7 and greater than or equal to 1.b) y lies between 11 and 17.c) 10 is greater than or equal to Z .d) Z lies between 14 and 7.

10 Complete each of the following:




a) The least odd number is

b) The least prime number is

c) The smallest 2-digit natural number is

d) The greatest 3-digit natural number is



- e) The least even number between 24 and 33 is
- f)  Four consecutive natural numbers, the greatest of them is $x + 7$, are ($x \in \mathbb{N}$).
- g)  Five consecutive natural odd numbers, the greatest of them is $y + 15$, are ($y \in \mathbb{N}$).
- h)  If the middle number of three consecutive natural odd numbers is y , then the other two numbers are and the least value of y is

11 Given: $U = \{x : x \in \mathbb{N}, 3 < x \leq 11\}$, $X = \{4, 5, 9\}$ and $Y = \{y : y \in \mathbb{N}, 5 \leq y \leq 11\}$, then find each of the following and represent the result on the number line.

- a) $X - Y$ b) $X \cup Y$ c) $X \cap Y$

FOR EXCELLENT PUPILS

12 1)  If a, b, c and d are four natural numbers where:

$$d > a, b < c, c < d, b < d \text{ and } b > a,$$

then arrange these numbers on the number line.

2) If x, y, z, l and m are five natural numbers where:

$$l < x < m, x < m < z, y < l.$$

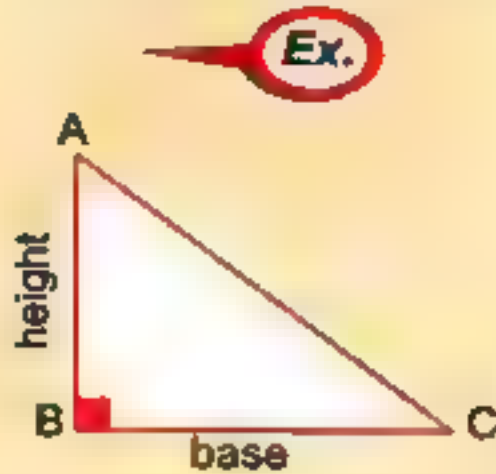
Represent these numbers on the number line.

EXERCISE 1

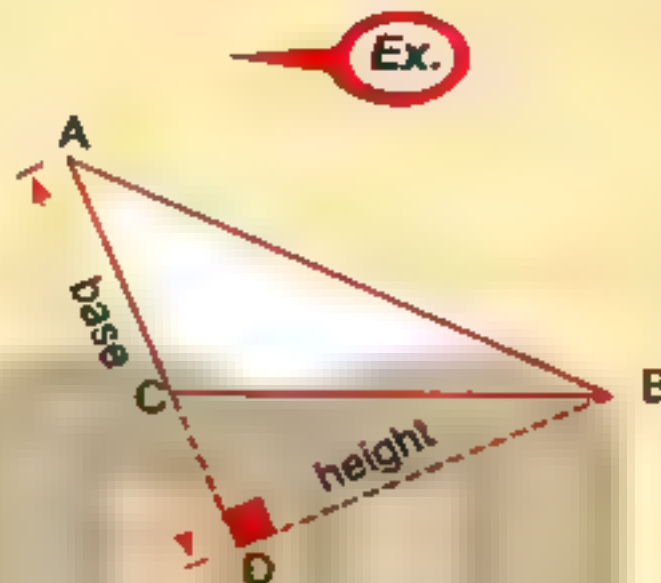
Area and its Units (area of triangle)



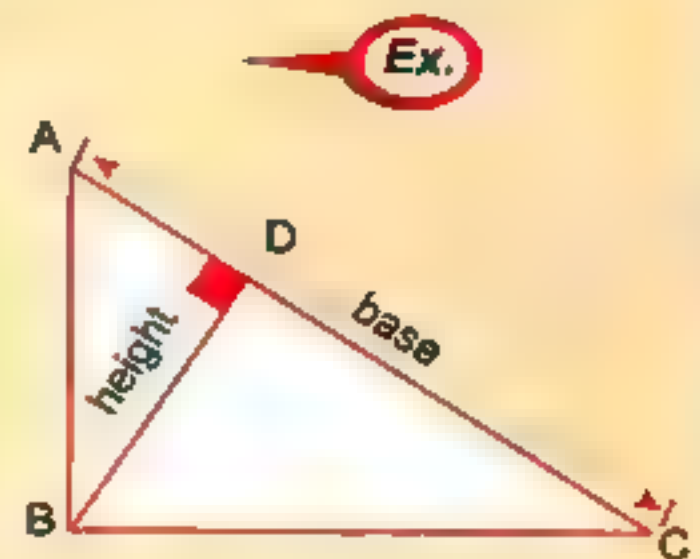
1 Determine the base and corresponding height in each triangle as the examples:



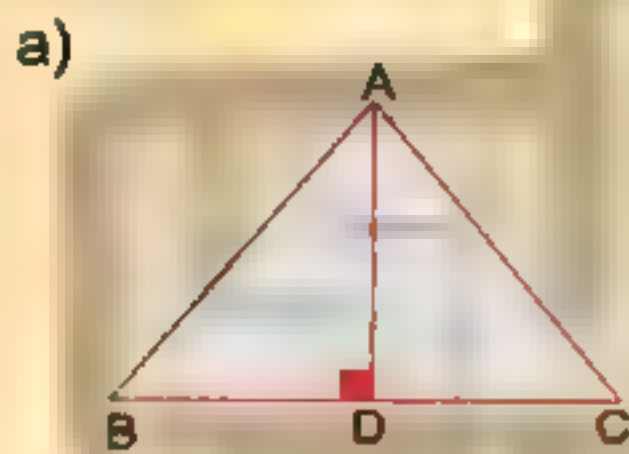
The base is \overline{BC}
The height is \overline{AB}



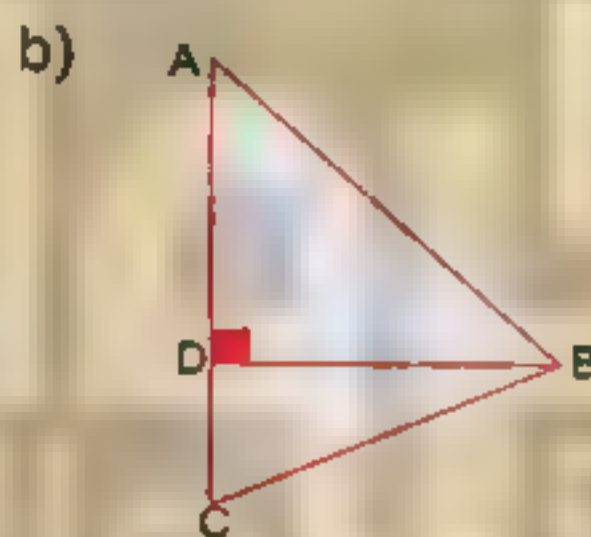
The base is \overline{AC}
The height is \overline{BD}



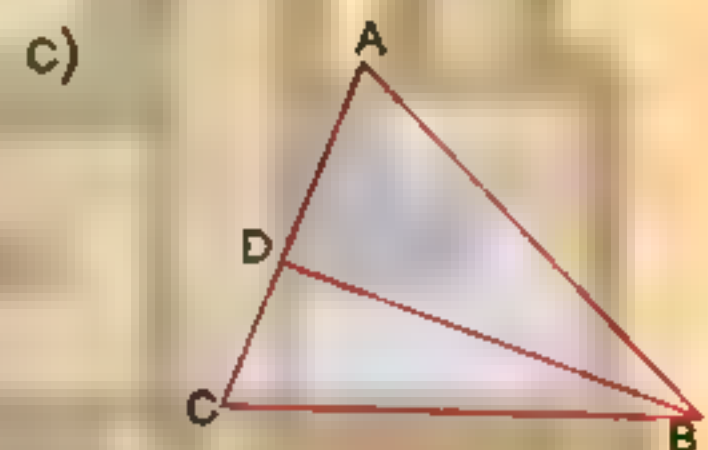
The base is \overline{BC}
The height is \overline{AD}



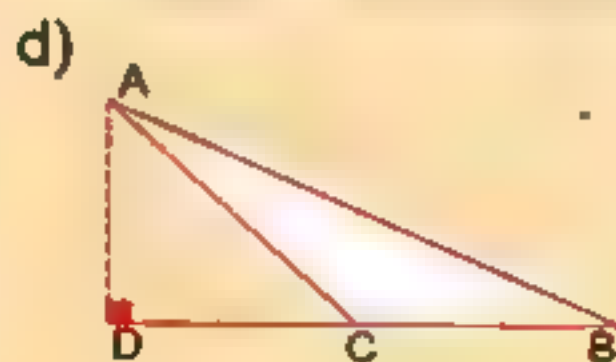
The base is
The height is



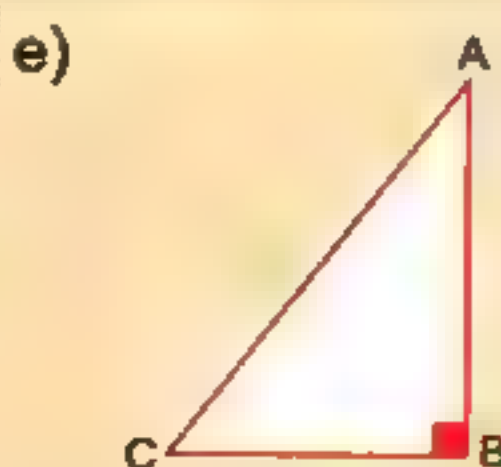
The base is
The height is



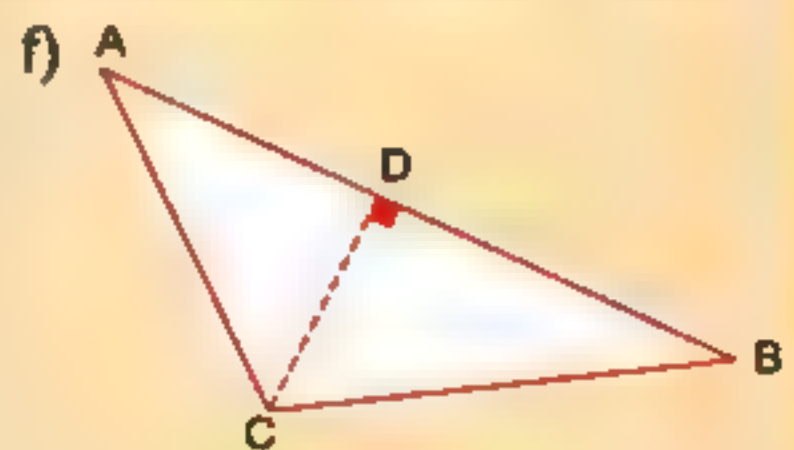
The base is
The height is



The base is
The height is

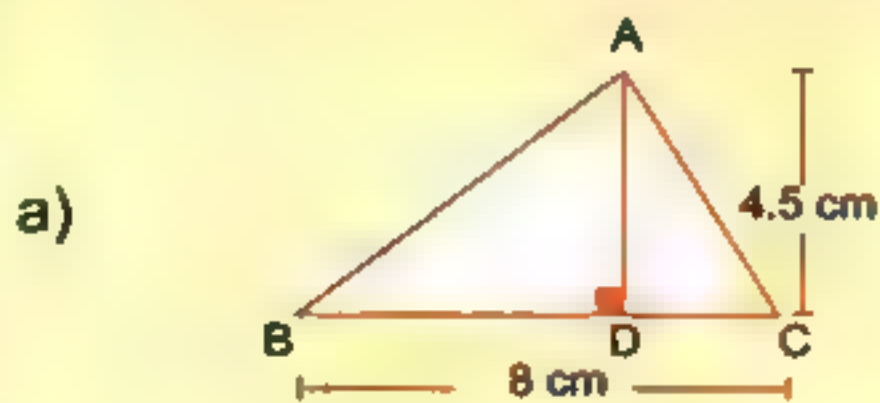


The base is
The height is

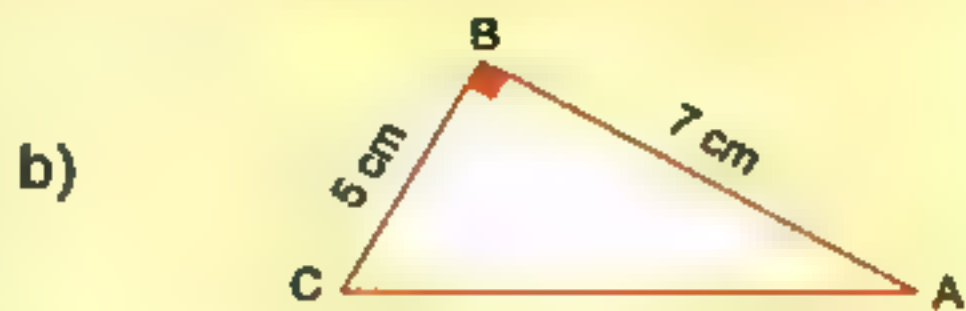


The base is
The height is

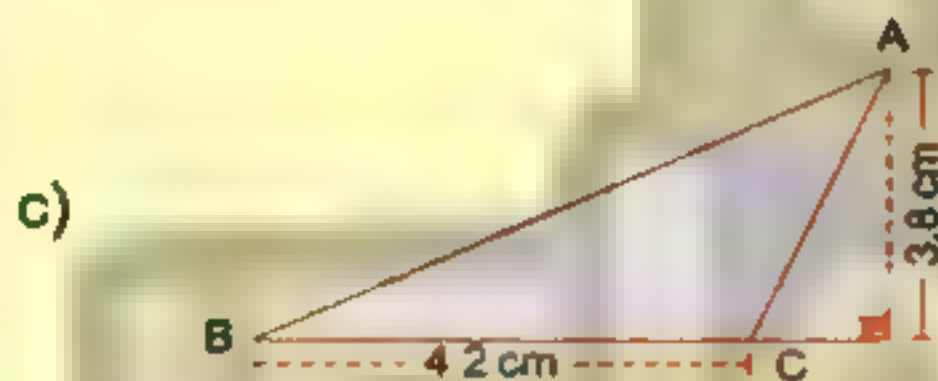
2 Find the area of the triangle ABC in each of the following:



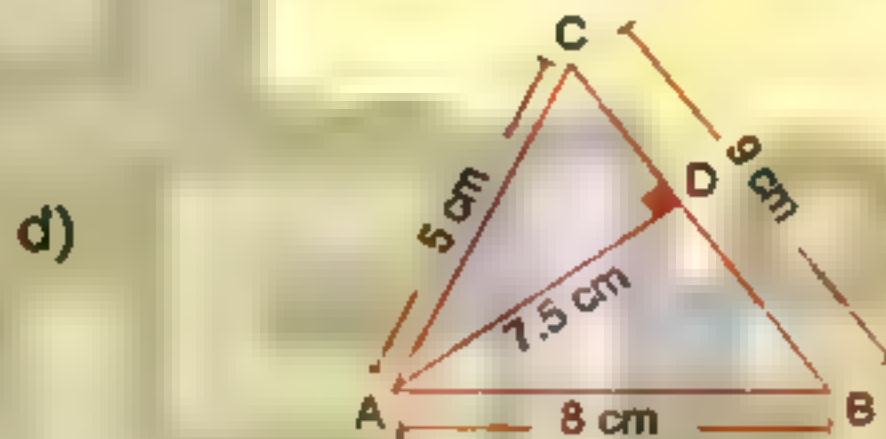
Area of $\triangle ABC = \dots \times \dots \times \dots$
 $= \dots \text{ cm}^2.$



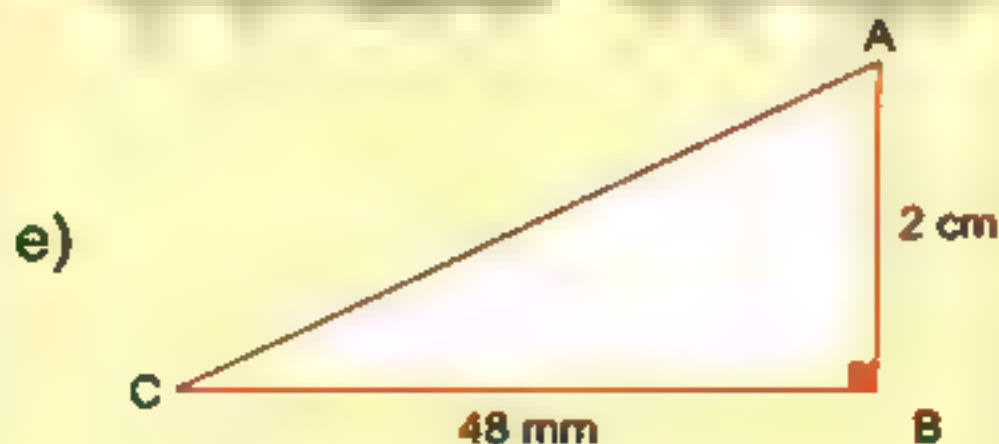
Area of $\triangle ABC = \dots \times \dots \times \dots$
 $= \dots \text{ cm}^2.$



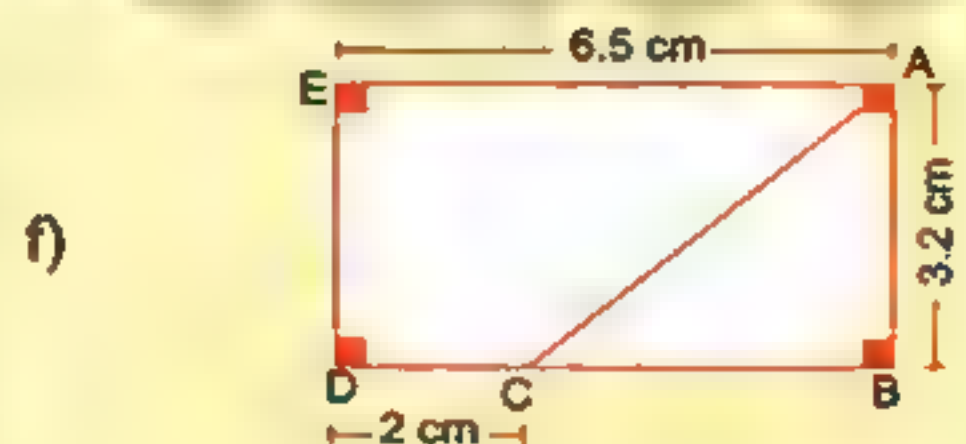
Area of $\triangle ABC = \dots \times \dots \times \dots$
 $= \dots \text{ cm}^2.$



Area of $\triangle ABC = \dots \times \dots \times \dots$
 $= \dots \text{ cm}^2.$



Area of $\triangle ABC = \dots \times \dots \times \dots$
 $= \dots \text{ cm}^2.$




Area of $\triangle ABC = \dots \times \dots \times \dots$
 $= \dots \text{ cm}^2.$

3 Complete the following table:

	The base length	The corresponding height	The area of triangle
a)	16 cm	14 cm	... cm ²
b)	7 cm	12 cm	... cm ²
c)	12 dm	9 dm	... dm ²
d)	10 dm	... dm	25 dm ²
e)	8 dm	... dm	32 dm ²
f)	..... cm	12.5 cm	62.5 cm ²
g)	9 m	... m	45 m ²

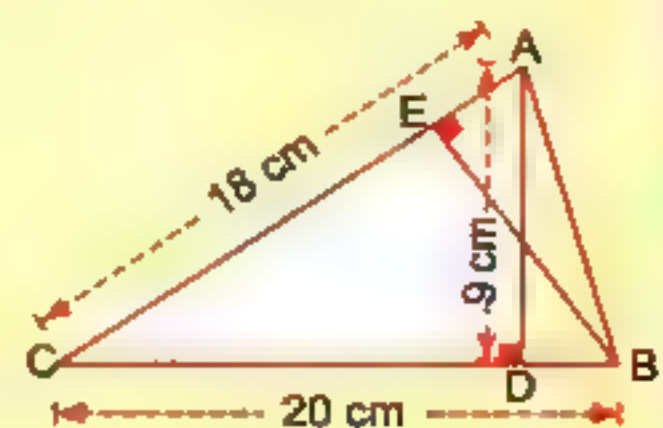
4 Complete each of the following:

- a) Area of a triangle = $\frac{1}{2} \times \dots \times \dots$
- b) Area of a square = $\dots \times \dots$
- c) Area of a rectangle = $\dots \times \dots$
- d)  A triangle whose base length = 12 cm and corresponding height = 5 cm, then its area = cm².
- e) A triangle whose base length = 10 cm and area = 25 cm², then its height = cm.
- f) If the area of a triangle is 30 cm² and its base length = 10 cm, then its height = cm.

5 In the opposite figure:

If AD = 9 cm and BC = 20 cm, find:

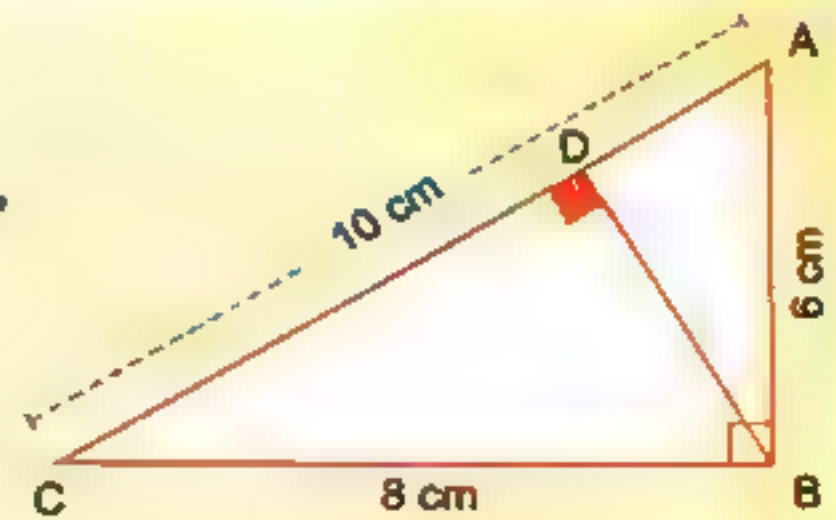
- a) The area of $\triangle ABC$.
- b) The length of BE, if AC = 18 cm.



6 In the opposite figure:

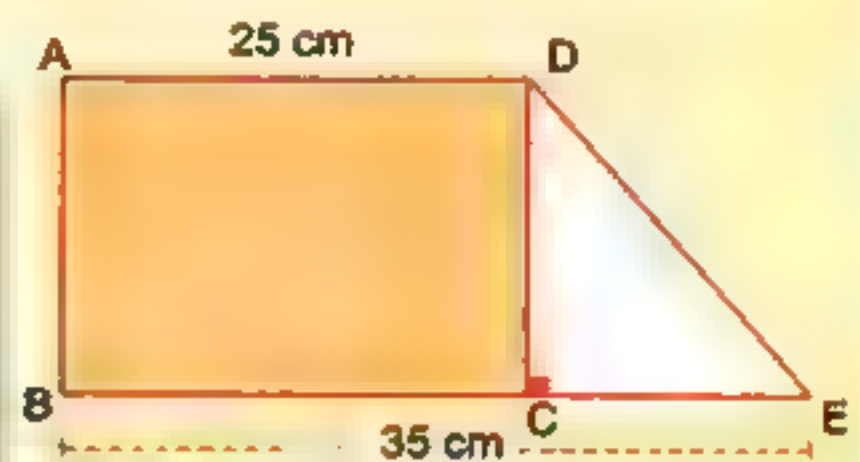
ABC is a right-angled triangle at B. If $AB = 6$ cm, $BC = 8$ cm, $AC = 10$ cm and $\overline{BD} \perp \overline{AC}$, find:

- The area of $\triangle ABC$
- The length of \overline{BD}

**7 In the opposite figure:**

ABCD is a rectangle whose area is 600 cm^2 , $E \in \overrightarrow{BC}$, $BE = 35$ cm and $AD = 25$ cm. Find:

- The area of $\triangle DCE$.
- The area of the figure ABED.

**8 Which is greater in area...?**

A triangle with base length 3.25 dm and height = 4 dm or a rectangle with dimensions 26 cm and 20 cm.

Then find the difference between their areas in cm^2 .

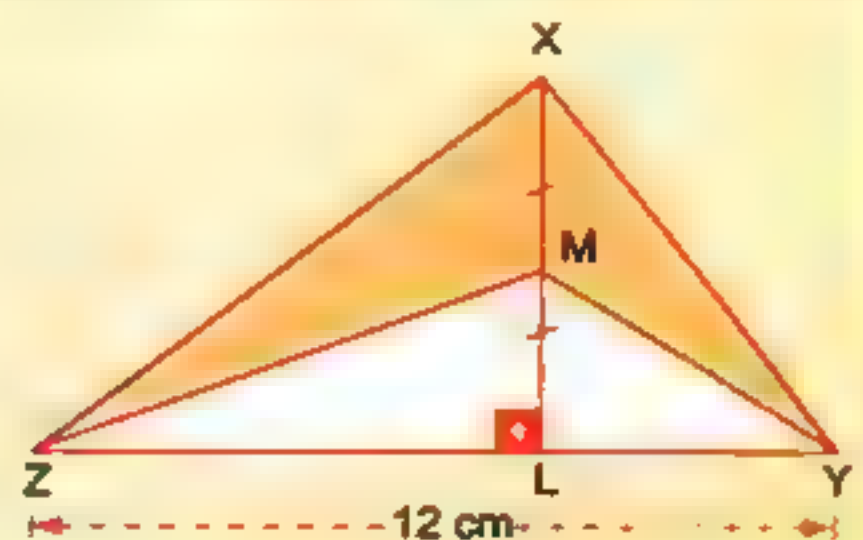
9 Which is greater in area...?

A triangle whose base length is 96 cm and height is 6 dm or a rectangle whose length is 80 cm and width is 34 cm. Then find the difference between their areas in square decimeter.

10 In the opposite figure:

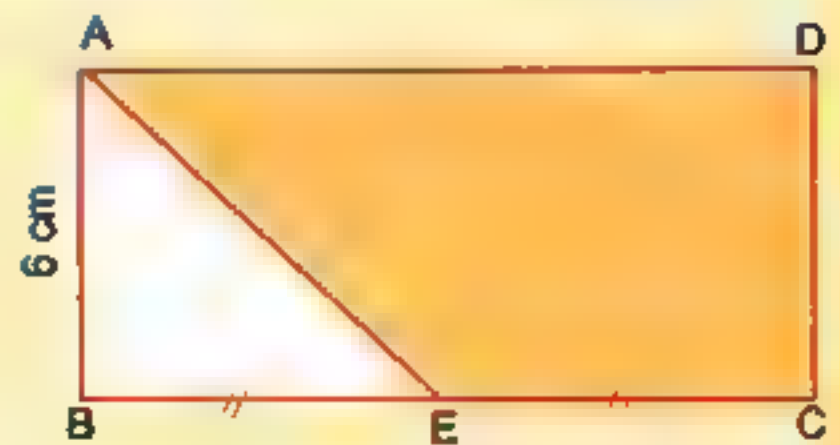
XYZ is a triangle in which $\overline{XL} \perp \overline{YZ}$, M is the midpoint of \overline{XL} .

If $ZY = 12$ cm and $XL = 8$ cm then, calculate the area of the shaded figure.



11 In the opposite figure:

ABCD is a rectangle whose area is 96 cm^2 ,
if $AB = 6 \text{ cm}$, E is the midpoint of \overline{BC} .

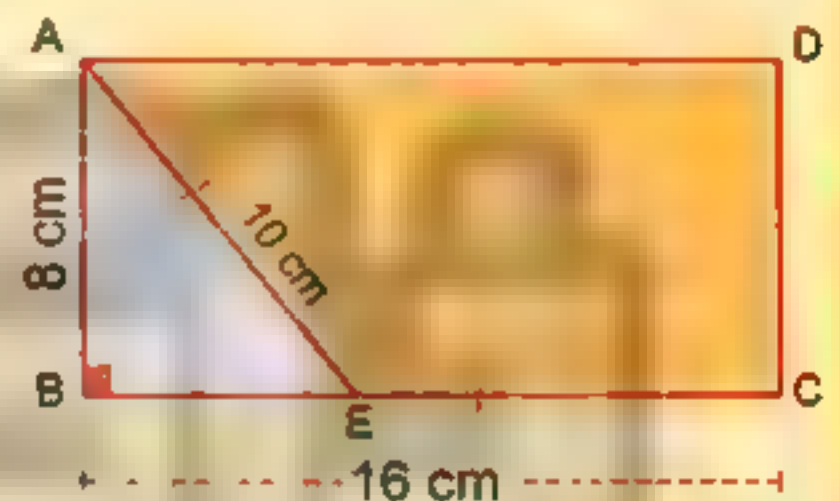


- What is the name of the shaded part?
- (1) Find the perimeter of the rectangle ABCD.
(2) Find the area of the triangle ABE.
(3) Find the area of the shaded part.

12 In the opposite figure:

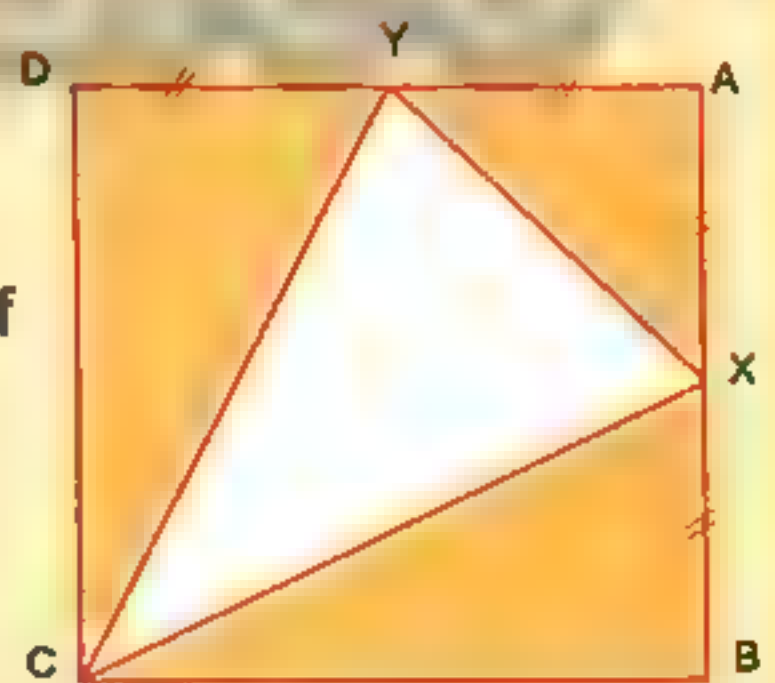
ABCD is a rectangle in which $AB = 8 \text{ cm}$,
 $BC = 16 \text{ cm}$
and $E \in \overline{BC}$ where $AE = EC = 10 \text{ cm}$.

Find the area of the figure AECD.

**13 In the opposite figure:**

ABCD is a square whose side length = 8 cm ,
X is the midpoint of \overline{AB} and Y is the midpoint of \overline{AD} . Find:

- The area of the square ABCD
- The area of each of the three shaded triangles.
- Deduce the area of $\triangle XYZ$.



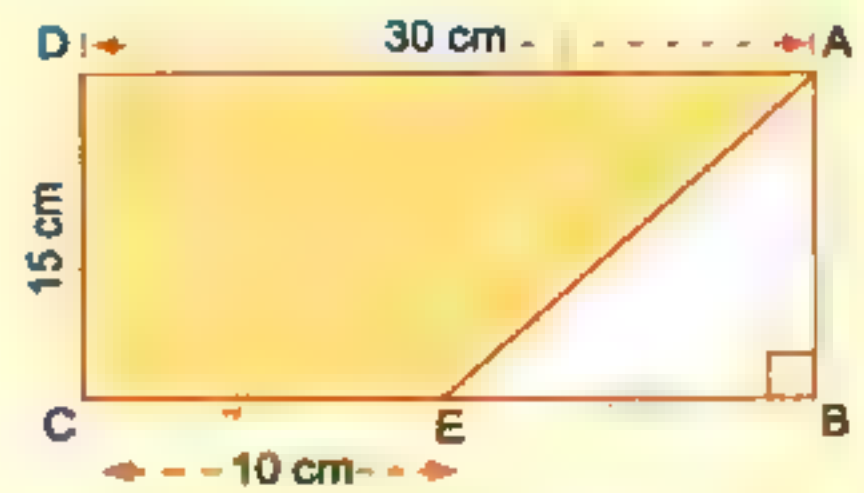
14 In the opposite figure:

ABCD is a rectangle

, AD = 30 cm , CD = 150 cm

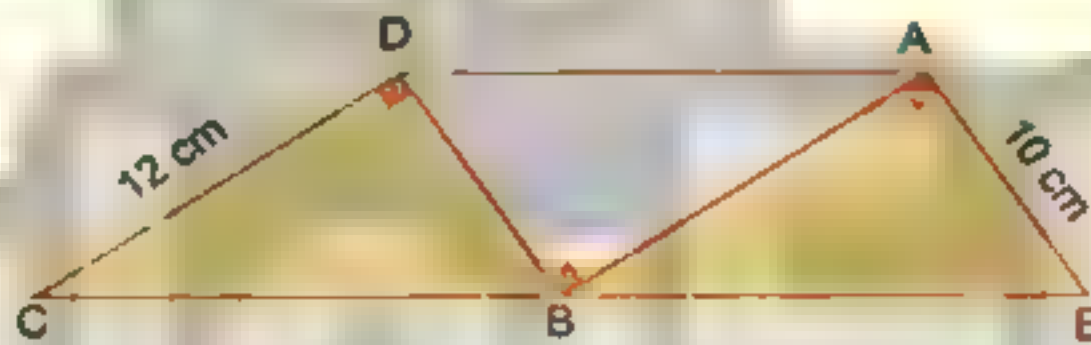
and CE = 10 cm

Calculate the area of the shaded part.



FOR EXCELLENT PUPILS

15 ABCD is a parallelogram in which:



$\overline{BD} \perp \overline{BA}$ and $\overline{AE} \perp \overline{BA}$: if AE = 10 cm and

DC = 12 cm , then answer the following:

- What are the names of figures AEBD and AECD?
- Calculate the area of each of AEBD and AECD.



EXERCISE 2

Surface Area of a Parallelogram



Interactive Exercise

- 1 In each of the following parallelograms, determine the base and its corresponding height as the example:

Ex.

The base is \overline{BC} , its corresponding height is AE

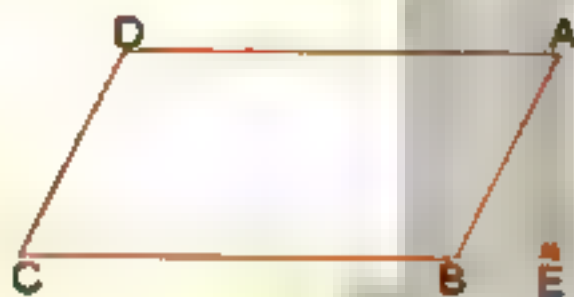


Figure (1)

The base is
Its corresponding height is



Figure (3)

The base is
Its corresponding height is

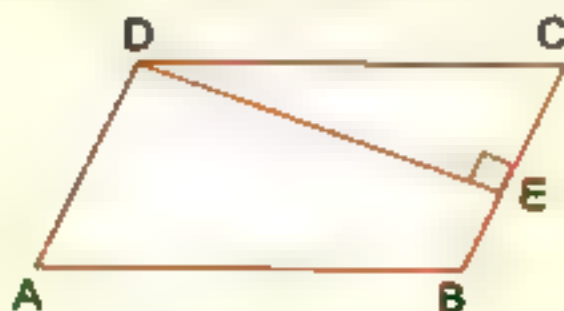


Figure (5)

The base is
Its corresponding height is



Figure (2)

The base is
Its corresponding height is

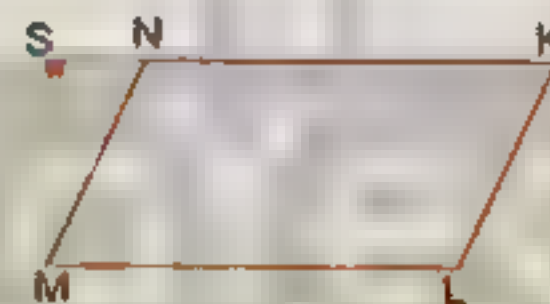


Figure (4)

The base is
Its corresponding height is

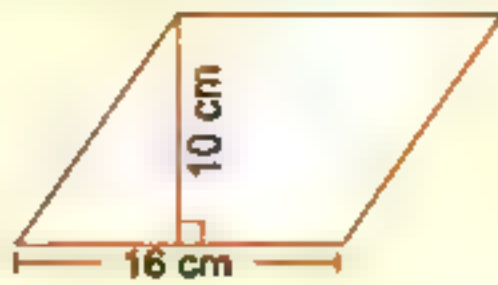


Figure (6)

The base is
Its corresponding height is

2 Find the area of each parallelogram:

a)



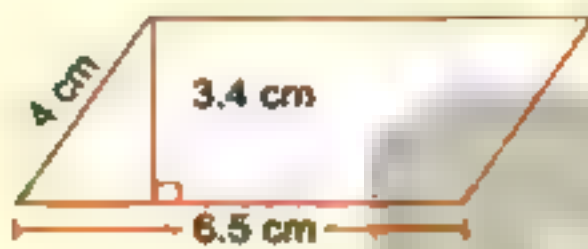
Area = . × .. = cm².

b)



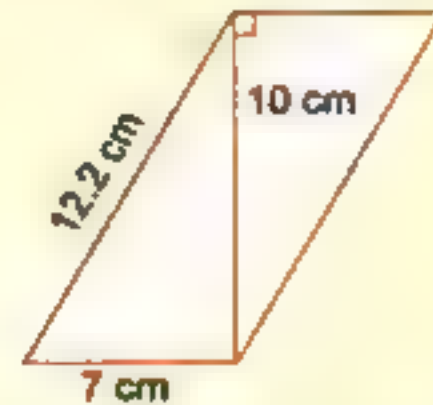
Area = × = cm².

c)



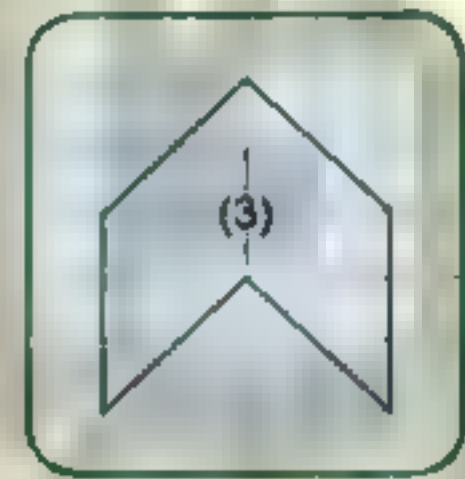
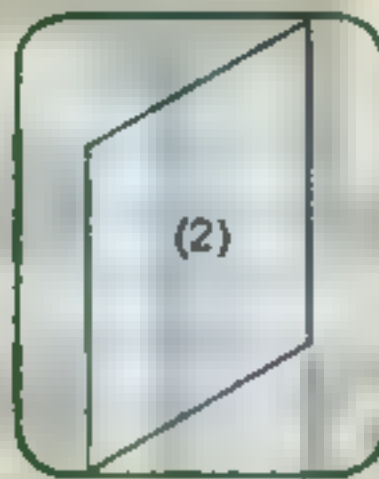
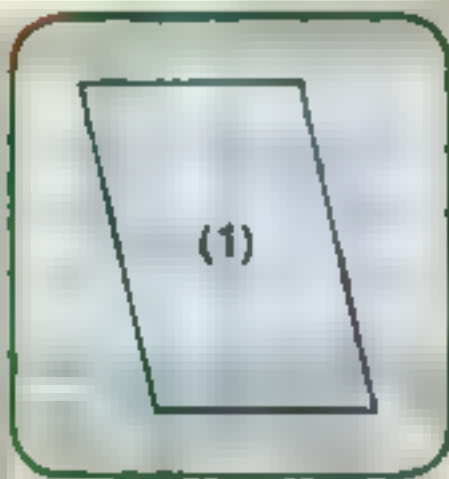
Area = × = cm².

d)



Area = . . × = cm².

3 Complete to find the area of each figure (by using the lattice).



Area of figure (1) = × = square units.

Area of figure (2) = .. . × = square units.

Area of figure (3) = . . . × .. . + .. . × = + = square units.

4 Complete the following table that gives data about parallelograms:

	Length of the base in cm	Height in cm	The area in cm ²
a)	8	3.25	.....
b)	6.1	.....	54.9
c)	.....	4.2	63

5 Complete each of the following:

- The area of a parallelogram = \times
- The area of a parallelogram with a base length of 8 cm and a height of 5 cm = cm^2 .
- The area of a parallelogram is 36 cm^2 and the length of one of its sides is 9 cm, then its corresponding height = cm.
- The area of a parallelogram in which the length of one of its sides is 7 cm and corresponding height is 5 cm = cm^2 .
- The area of a parallelogram with a base length of 1 dm and a corresponding height of 4.5 cm = cm^2 .
- The height of a parallelogram corresponding to the base of length 10 cm and its area is 120 cm^2 = cm.

- g)  In the opposite figure: ABCD is a parallelogram, CB = 12 cm

AD = cm and AM = cm.

Area of parallelogram ABCD = cm^2 .

Area of triangle ABM = cm^2 .

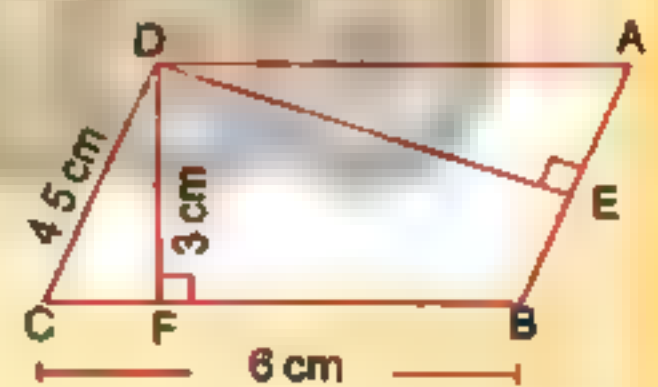
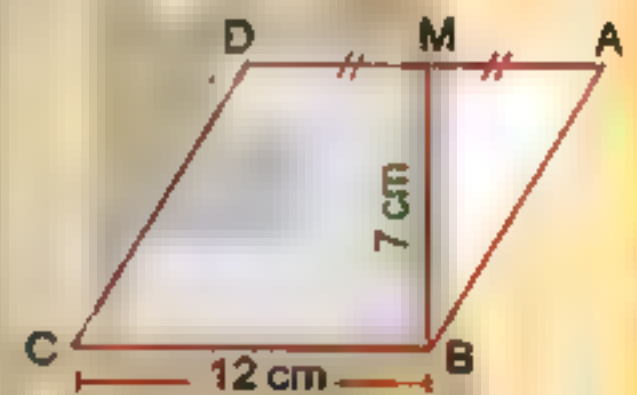
Area of figure MBCD = cm^2 .

- h)  In the opposite figure, complete:

Area of the parallelogram ABCD = BC \times DE = cm^2 .

Also, area of parallelogram ABCD = \times DE.

Deduce the length of \overline{DF} = cm




6 Choose the correct answer:

- The area of a parallelogram with a base length of 12 cm and a corresponding height of 3 cm =
(4 cm^2 or 15 cm^2 or 18 cm^2 or 36 cm^2)
- The area of a parallelogram with a base length of 10 cm and a corresponding height of 5 cm =
(2 cm^2 or 25 cm^2 or 50 cm^2 or 100 cm^2)

c) The area of a parallelogram with a base length of 24 cm and a corresponding height of 15 cm =

(360 cm or 360 cm² or 240 cm² or 180 cm²)

d)  In the opposite figure the area of the parallelogram is

(7.6 cm² or 12.63 cm² or 13.63 cm or 13.63 cm²)

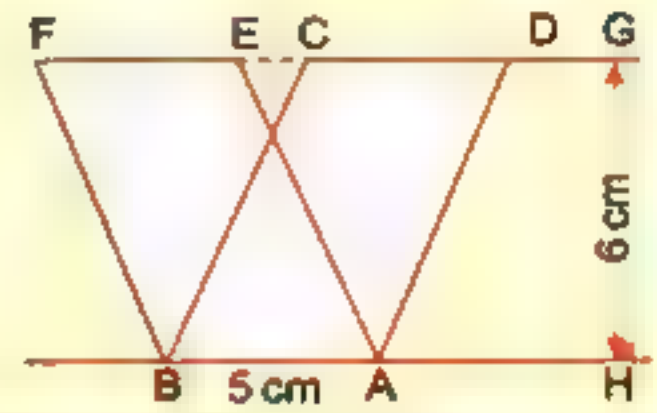
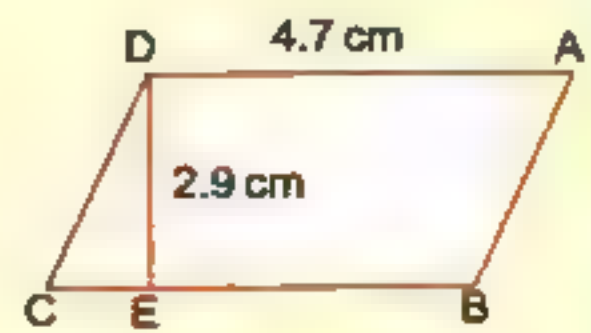
e) In the opposite figure:

1) The area of parallelogram ABCD = cm².

(15 or 25 or 30 or 25)

2) The area of parallelogram ABFE = cm².

(15 or 25 or 30 or 35)



7  If the base length of a parallelogram is 34.7 cm and its corresponding height is 28.17 cm, find its area approximated to the nearest hundredth.


8 If the base length of a parallelogram is 25.9 cm and its corresponding height is 12.75 cm. Find its area:

a) approximated to the nearest hundredth.

b) approximated to the nearest one decimal.

c) approximated to the nearest unit (whole number).



9  Which is greater in area? A parallelogram with a base length of 15.7 cm and a corresponding height of 9.4 cm, or the area of a triangle with a base length of 14 cm and a height of 18 cm.

10 Choose the correct answer:

a) If the area of a parallelogram is 72 cm² and its base length is 12 cm, then its corresponding height = cm.

a) 8 cm

b) 6 cm

c) 10 cm

d) 12 cm

b) If the area of a parallelogram is 56 cm² and its height is 8 cm, then its corresponding length = cm.

a) 7 cm

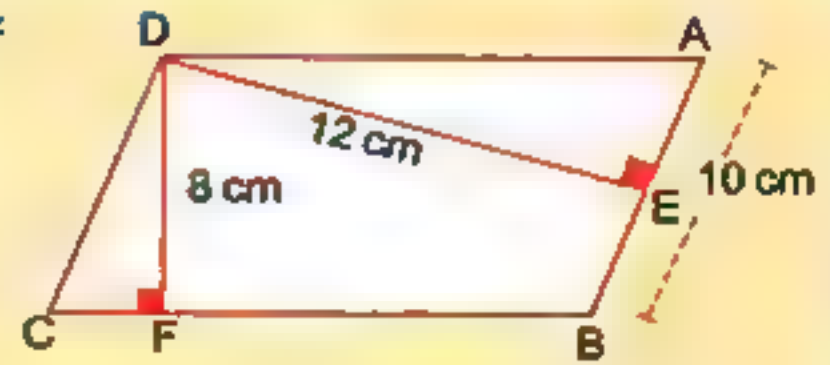
b) 6 cm

c) 9 cm

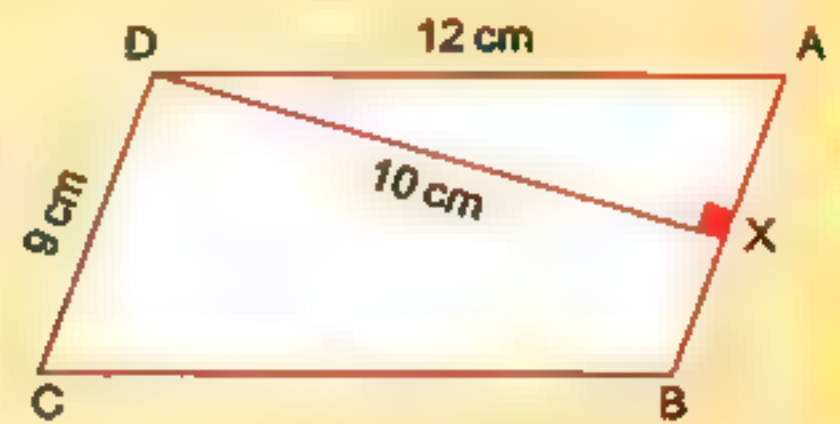
d) 28 cm

- 11 In the opposite figure calculate the area of parallelogram ABCD, then find the length of \overline{BC} , where:

$AB = 10$ cm, $DE = 12$ cm and $DF = 8$ cm

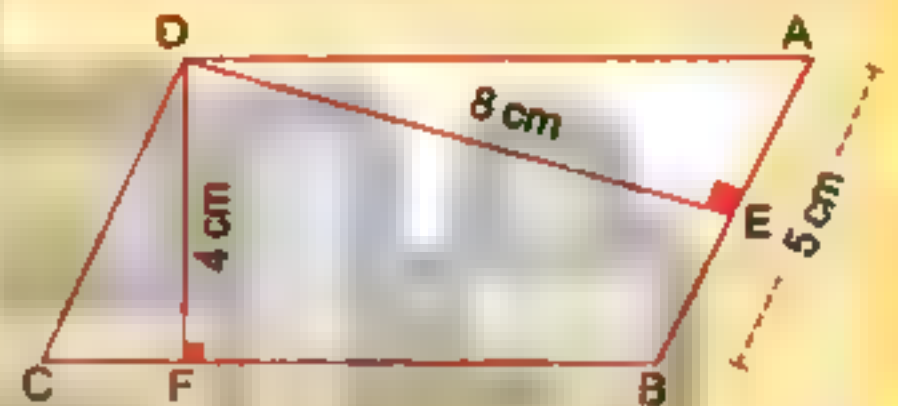


- 12 In the opposite figure ABCD is a parallelogram in which $AD = 12$ cm and $DC = 9$ cm. If $\overline{DX} \perp \overline{AB}$ and $DX = 10$ cm, calculate the area of the parallelogram and find the height drawn from D to \overline{BC} .

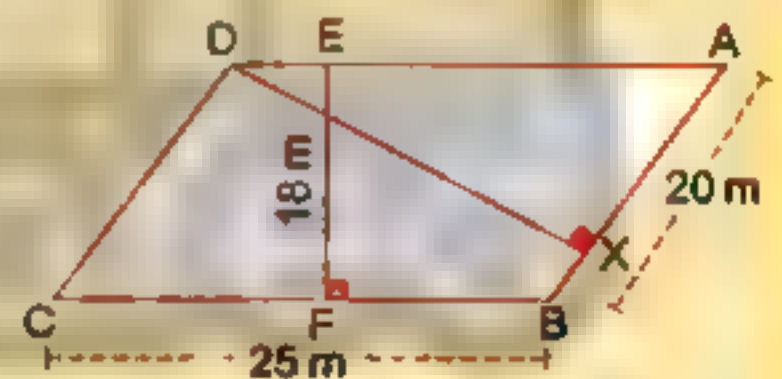


- 13 In the opposite figure ABCD is a parallelogram where $AB = 5$ cm, $DE = 8$ cm and $DF = 4$ cm.

Find the length of \overline{BC} .

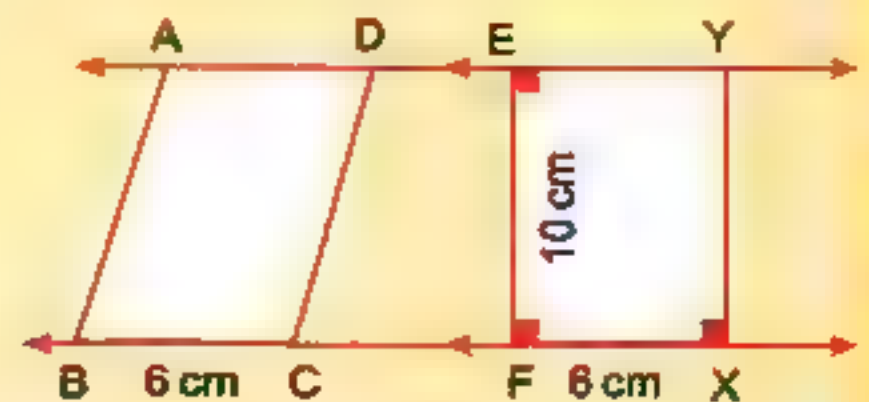


- 14 The opposite figure represents a piece of land in the shape of parallelogram ABCD, if $BC = 25$ m, $AB = 20$ m, $\overline{DX} \perp \overline{AB}$, $\overline{EF} \perp \overline{BC}$ and $EF = 18$ m. Find:



- The area of the land.
- The length of \overline{DX} .
- The perimeter of the land.

- 15 In the opposite figure:
 $\overline{AY} \parallel \overline{BX}$, ABCD is a parallelogram and EFXY is a rectangle.
 Compare between their areas.

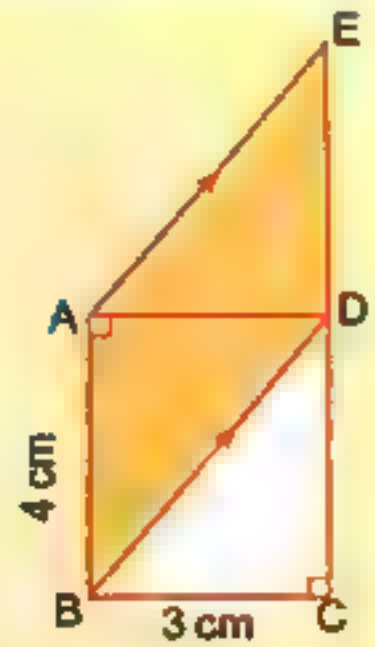


16 In the opposite figure:

ABCD is a rectangle in which $AB = 4$ cm and $BC = 3$ cm.

If $\overline{BD} \parallel \overline{AE}$ and $E \in \overline{CD}$:

- Show why figure ABDE is a parallelogram and calculate its area.
- What is the relation between the area of rectangle ABCD and the area of parallelogram ABDE?



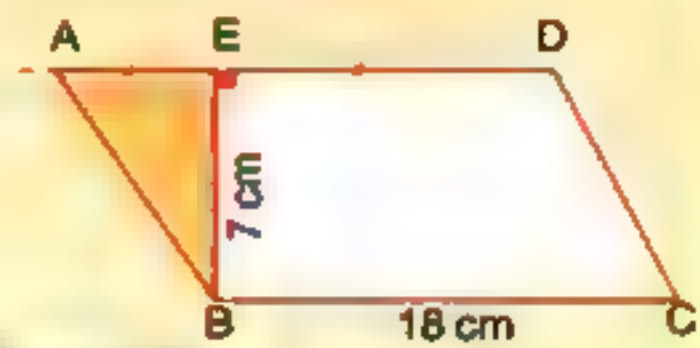
17 In the opposite figure:

ABCD is a parallelogram in which $BC = 18$ cm,

$\overline{BE} \perp \overline{AD}$ and $BE = 7$ cm.

If $AE = \frac{1}{3} AD$, find:

- Area of parallelogram ABCD.
- Area of figure EBCD.



18 Patterns: Khaled drew parallelograms according to the following patterns:

The first: its base length is 2 cm and height is 2 cm.

The second: its base length is 2 cm and height is 4 cm.

The third: its base length is 2 cm and height is 8 cm.

and he continued in the same pattern.

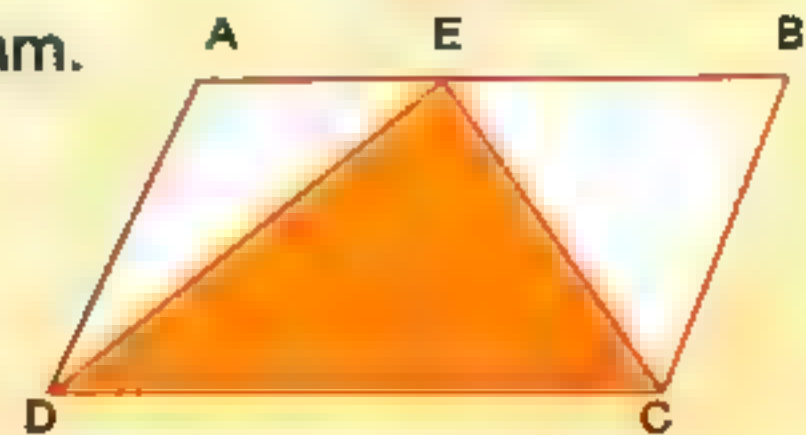
What is the area of the eighth parallelogram?

FOR EXCELLENT PUPILS

19 In the opposite figure: ABCD is a parallelogram.

If the area of $(\triangle EBC) + \text{area of } (\triangle EAD)$

$= 120 \text{ cm}^2$, find the area of $\triangle DEC$.



Unit (1)

Worksheet 1

20

5

1 Complete by using (\in , \notin , \subset , \supset):

- a) $3 \dots \mathbb{N}$
 b) $\{5\} \dots \mathbb{N}$
 c) $0.7 \dots \mathbb{N}$
 d) $\{0, 0.7\} \dots \mathbb{N}$
 e) The smallest counting number $\dots \mathbb{N}$

2 Complete the following:

- a) The smallest natural number is
 b) The smallest counting number is
 c) The set of natural numbers greater than 7 is
 d) $\mathbb{N} - \{0\} = \dots$
 e) $\mathbb{N} \cup \mathbb{C} = \dots$

3 Put (\checkmark) or (\times):

- a) $3.6 \in \mathbb{N}$ ()
 b) $\mathbb{N} - \mathbb{C} = \{0\}$ ()
 c) The greatest natural number is milliard. ()
 d) $\{0\} \cap \mathbb{N} = \mathbb{C}$ ()
 e) The smallest natural number is 1. ()

4 Answer the following.

- a) Write the set of multiples of 4 which are less than 16.
 b) Write the set of multiples of 5 which are less than 30.

Worksheet

2

till Lesson (2) - Unit (1)

20

5

1 Choose the correct answer:

- a) $\mathbb{Q} \cap \mathbb{E} =$ ($\{2\}$, \mathbb{Q} , \mathbb{E} or \emptyset)
- b) $\mathbb{Q} \cup \mathbb{E} =$ (\mathbb{C} , \mathbb{N} , \mathbb{Q} or \mathbb{E})
- c) $\mathbb{N} - \mathbb{E} =$ (\mathbb{N} , \mathbb{C} , \mathbb{Q} or \mathbb{E})
- d) The smallest prime number is (0 , 1 , 2 or 3)
- e) \mathbb{E} \mathbb{N} (\in , \notin , \subset or \varnothing)

2 Complete by using (even, odd, prime or nothing):

- a) Even number \times even number is number.
- b) The smallest prime number is number.
- c) Any prime number except (2) is number.
- d) If x is an odd number, then $(x - 1)$ is number.
- e) If x is an even number, then $(x + 1)$ is number.

3 Put (\checkmark) or (\times):

- a) The smallest prime number is 3. ()
- b) $\mathbb{P} - \mathbb{Q} = \{2\}$ ()
- c) $\mathbb{N} - \mathbb{Q} = \mathbb{E}$ ()
- d) $\mathbb{N} \cap \mathbb{Q} = \mathbb{N}$ ()
- e) The number of 5th grade students $\in \mathbb{N}$ ()

4 Write by the listing method:

- a) \mathbb{N} b) \mathbb{Q} c) \mathbb{E} d) \mathbb{P}

Worksheet 3

till Lesson (3) - Unit (1)

20

5

1 Complete each of the following:

- a) The number which lies to the right of 6 directly on the number line is
- b) If a lies to the left of b directly on the number line, then a b.
- c) $\mathbb{C} \cup \{0\}$ =
- d) $\mathbb{E} \cap \mathbb{P}$ =
- e) $\mathbb{E} \cap \mathbb{O}$ =

2 Arrange the following numbers ascendingly, then represent them on the number line:

- a) 3, 0, 5, 2 and 1 b) 2, 7, 3 and 1

3 Choose the correct answer:

- a) $\{0, 2, 5, 4\}$ \mathbb{N} (\in, \notin, \subset or \supset)
- b) The number of classes of a school \mathbb{N} (\in, \notin, \subset or \supset)
- c) If a lies to the right of b directly on the number line, then a b ($>, =, \geq$ or $<$)
- d) The smallest counting number is (0, 1, 2 or 3)
- e) $\mathbb{E} \cup \mathbb{O} =$ ($\emptyset, \mathbb{N}, \mathbb{C}$ or \mathbb{E})

4 Write by using the listing method, then represent on the number line:

- a) $X = \{a : a \in \mathbb{N}, 0 \leq a \leq 3\}$
- b) $Y = \{a : a \in \mathbb{N}, a \text{ is a prime factor of the number } 15\}$
- c) $Z = \{a : a \in \mathbb{N}, a \geq 3\}$
- d) $W = \{a : a \in \mathbb{N}, a > 5\}$
- e) $L = \{a : a \in \mathbb{N}, a \text{ is an even number greater than } 5\}$

Unit (3)

Worksheet 10

till Lesson (1) - Unit (3)

20

5

1 Complete each of the following:

- a) The area of a triangle = $\frac{1}{2} \times \dots \times \dots$
 b) 5, 25, 45, in the same pattern
 c) If $X = \{x : x \in \mathbb{N}, 0 < x \leq 4\}$, then $X = \dots$
 d) The area of the triangle whose base length is 5 cm and its height is 4 cm =
 e) If $5 + x = 11$, then $x = \dots$

2 Choose the correct answer:

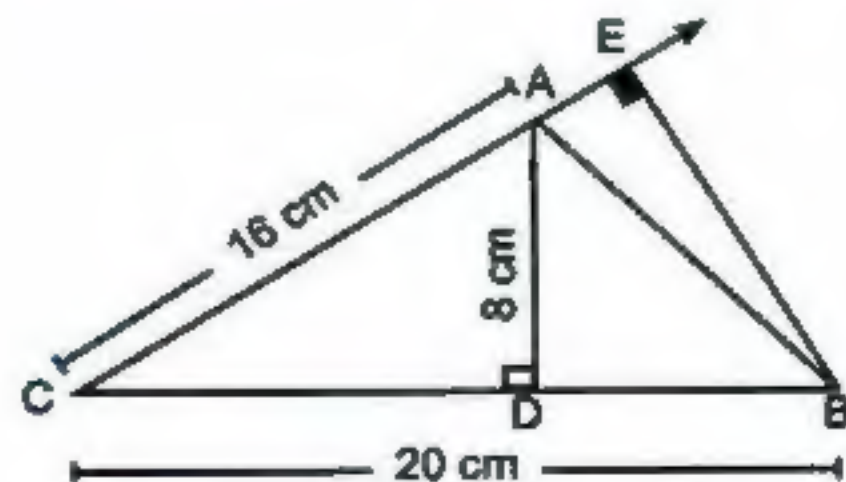
- a) $(7 \times 0) \dots \mathbb{N}$ (\in, \notin, \subset or \supset)
 b) The height of the triangle whose area is 20 cm^2 and base length is 4 cm = cm.
 (80, 24, 16 or 10)
 c) $\mathbb{Q} \cup \mathbb{E} = \dots$ ($\mathbb{Q}, \mathbb{E}, \mathbb{N}$ or \emptyset)
 d) If the perimeter of a rectangle is 32 cm and its length is x cm, then its width = cm.
 ($32x, \frac{32}{x}, 16 - x$ or $16 + x$)
 e) If the perimeter of an equilateral triangle is 18 cm and its height is 8 cm, then
 its area = cm^2 (10, 24, 48 or 144)

3 Use the distributive property to find the result of: 101×78

4 In the opposite figure:

ABC is a triangle in which
 $\overline{AD} \perp \overline{BC}$, $\overline{BE} \perp \overline{AC}$, $BC = 20 \text{ cm}$,
 $AC = 16 \text{ cm}$ and $AD = 8 \text{ cm}$. Find:

- a) The area of $\triangle ABC$.
 b) The length of \overline{BE} .



Worksheet

11

till Lesson (2) - Unit (3)

25

5

1 Complete each of the following:

- The smallest natural number is
- The area of a parallelogram = \times
- If $14 - x = 8$, then $x =$
- 1, 4, 9, 16, (in the same pattern)
- The area of the parallelogram whose base length is 7.5 cm and its height is 10 cm = cm^2 .

2 Choose the correct answer:

- $\{0, \frac{1}{2}, 1\}$ \mathbb{N} (\in, \notin, \subset or \supset)
- If the product of two numbers x and y is 8, then $x =$ ($\frac{8}{y}, \frac{y}{8}, 8y$ or $y + 8$)
- The area of $\square ABCD$ where $AB = 8$ cm, $BC = 12$ cm and the greater height = 6 cm is cm^2 . (24, 48, 72 or 96)
- $(4 \times \dots) \times 78 = 7800$ (5, 25, 50 or 125)
- If the area of a parallelogram is 24 cm^2 and its base length is 6 cm, then the corresponding height to this base = cm. (3, 4, 8 or 12)

3 Which is greater in area?

The parallelogram whose base length is 12 cm and height is 9 cm or the triangle whose base length is 14 cm and height is 13 cm.

4 a) If $a = 35$, $b = 18$ and $c = 65$, then find the value of: $a \times b + b \times c$

b) Solve the equation: $\frac{1}{3}x + 1 = 5$

5 In the opposite figure:

$ABCD$ is a parallelogram in which $AD = 24$ cm,
 E is the midpoint of \overline{AD} , the area of $\triangle ABE = 60 \text{ cm}^2$.

Find:

- The area of $\square ABCD$.
- The area of the figure $EBCD$.

